

THE FUNGI OF MANITOBA
AND
SASKATCHEWAN

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Memoirs on Canadian Fungi

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THE FUNGI OF MANITOBA AND SASKATCHEWAN

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WITH A PREFACE BY

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DOMINION BOTANIST,
CENTRAL EXPERIMENTAL FARM, OTTAWA



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PREFACE

Of the services that the science of botany renders to mankind, the most readily recognised and supported are those that deal directly with economic problems. Research, essentially fundamental but less colourful, upon which the other services depend, is only too often regarded as merely academic, and hence worthy of but scant recognition. It is not, perhaps, surprising that a generation, motivated by acquisitiveness and eager for the return of prosperity, should view scientific research with impatience and misgiving, and demand in its stead the application of scientific knowledge to the solution of its industrial and agricultural problems. The demand, however, is quite unreasonable and illogical. Applied science is born of research after laborious, devoted travail.

Canada is indeed fortunate in being served by mycological workers who, in spite of this popular misconception, carry on research for her benefit, quietly, indifferent to indifference, and unperturbed by lack of appreciation. Their contentment and ambition lies in the performance of the duties they have chosen; but it is to be hoped that the time is not far distant when they and the services they render will be more widely and more adequately recognized.

The memoir before us is an excellent record of mycological research, and the pleasure I have in voicing my appreciation in this brief preface is enhanced by the intimate personal contact with the authors it has been my privilege to enjoy for many years: Dr. G. R. Bieby the senior author and active pioneer in the systematic study of the fungus flora of Manitoba; Professor A. H. Reginald Buller, who was for many years the distinguished head of the Botany Department of the University of Manitoba; Dr. Dearness, Canada's veteran mycologist, and a world-wide authority on taxonomy of fungi, whose valuable help in work of this kind has always been so readily given; and two new collaborators, Professor W. F. Fraser and Dr. R. C. Russell, who in addition to their arduous official duties, the former as professor of biology at the University of Saskatchewan and the latter as one of my own associates at the Dominion Plant Pathological Laboratory at Saskatoon, have been busily engaged in contributing a first account of the fungus flora of Saskatchewan.

It is a record of a vast amount of painstaking work in collecting the material for study and in performing the critical determinations, and is proof of the valuable results that can be obtained when a number of keen scientists bring their interests to bear upon a neglected field in the science of botany. The work must arouse a feeling of gratefulness in every one interested in botanical sciences; and also, perforce, one of deep regret that such work has been so neglected in Canada, in the critical study not only of fungi, but also of phanerogams in the different regions of the Dominion. It is indeed a sad reflection on the progress of botanical exploration to have to report that "the phanerogamic flora is but inadequately known" but, nevertheless, it is true. The distinguished Director of the Royal Botanic Gardens, Kew, expressed himself, after a visit to Canada, in the following terms:

"It is to be hoped that the importance of botanical knowledge has only been overlooked, owing to the rapid developments which have been taking place in so many other directions and that the time is now approaching when the assistance which the science of Botany can render to a country will be more fully appreciated and that time and opportunity will be found to consider the urgent needs of the science in order that she may fulfil her proper functions."

Let us hope that this Memoir will constitute a stimulus to increased activities in these lines of research; and to more generous financial support upon which they must be dependent. The necessity for such activities has time after time impressed itself forcibly upon me during the many years of my service as Dominion Botanist and it is, therefore, most gratifying to me, as it will be to the mycologists of the Empire and of the world, to see this list of the fungi of Manitoba and Saskatchewan issued by the Canadian Honorary Advisory Council for Scientific and Industrial Research, as a first step towards the establishment of a more adequate botanical exploration of this country. The National Research Council deserves every recognition for its foresight in providing for these and sewing workers a means for the publication of their achievements. May this valuable first "Contribution to our Knowledge of Canadian Fungi" be the forerunner of many others.

It is, unfortunately, on a note of deep regret that my conclusion is reached. Two of the authors, men who for many years have been its faithful and ardent leaders, are lost to Canadian mycological research. Dr. Bishy is leaving his former haunts to accept a responsible position with the Imperial Mycological Institute at Kew and Professor A. H. Reginald Buller has severed his connection of many years with the Botany Department of the University of Manitoba. The reputation of these men has extended far beyond the borders of Manitoba, indeed well over the world, for distinguished service that mainly originated in this province, and the loss to Canada is a very real one. May many years of fruitful activities be yet before them!

H. T. GÜSSOW.

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I. INTRODUCTION

The three authors mentioned first on the Title-page published in 1939 a book entitled "*The Fungi of Manitoba*" (71). A Preface was contributed by Dr. E. J. Butler in which he expressed his conviction that such a work would be useful. A kind reception has been given to *The Fungi of Manitoba* despite its imperfections. The support of Prof. Fraser and Dr. Russell was has been enlisted in order to amplify the work to include records of the numerous collections made by them and other workers in Saskatchewan, as well as a considerably increased number of entries for Manitoba, revised determinations where necessary or possible, and expanded notes on the species of fungi found.

Every mycologist will realize that the present work by no means provides a complete list of the fungi in the large area under survey. Indeed, it probably would be impossible to provide a complete and accurate census of all the fungi in only one square mile of good collecting ground. The species of fungi present fluctuate from year to year and they occur in almost endless variety in the soil, in decaying leaves or wood, and on or on all the varied organic substrata or living hosts present. The contrast with the vascular plants is striking in this respect, for a phanerogamologist could quickly list all the higher plants present in any square mile at least in Western Canada, and an ecologist could arrange them readily in their proper associations. Nevertheless, despite the inevitable incompleteness of this work, Manitoba ranks mycologically amongst the better-known areas of the world.

The introductory sections of the preceding edition (*i.e.* *The Fungi of Manitoba*) have been revised, but not all the points previously mentioned have been repeated. All the fungi known to have been specifically determined from Saskatchewan and Manitoba are included, and also a few from just over the border in Ontario. The *Federales* of Alberta, as far as they are represented in the herbaria of the writers, have been added.

The authors desire once more to express their sincere thanks to many botanists who have helped make this work more complete and accurate. The Saskatchewan assistants in botany, listed in Section IV, Professors A. W. Jackson and C. W. Love have identified many host plants. The members of the Dominion Rust Research Laboratory on the campus of the University of Manitoba have contributed much to mycology. To all the members of the staff of this senior Research Laboratory, now including Drs. J. H. Craig, C. H. Gooden, Margaret Newton, W. J. Hanna, E. J. Gremmen, T. Johnson, W. L. Jordan, J. F. Macdonald, W. A. F. Hargrave, R. Peterson, and Misses J. N. Walsh, H. Peterson, A. M. Brown, W. Papp, and others employed temporarily, the writers are under obligation. Also previous members, such as I. L. Connors and D. E. Butler, have assisted with collections and study of fungi. Former students in the Botany Department including Drs. Irene McNamee, W. F. Haddon, Dorothy Newton Hughes, T. C. Vesterpool, Harold Brodeur, and Anne Dowding Keppeler, have also contributed much. Mr. M. Timmons, while an assistant to the senior author, carried on a large amount of work with the fungi, especially those found in the soil. The publications of these workers are noted in the Bibliography.

For the past thirty-three years the fungi have been studied in Manitoba, and following the establishment of the Rust Research Laboratory in 1933, many ten to fifteen workers have constantly studied the fungi on the domains they occupy. In Saskatchewan mycological work has gone on continuously since 1918 (see Section IV).

The species of fungi reported from Manitoba are represented by specimens in the herbarium of the Department of Botany, University of Manitoba, unless something is said to the contrary in the entry in the List of Species. Many specimens have been shared with John Dearness or other specialists, and many are also in the herbarium or in culture at the Rust Research Laboratory.

The arrangement of the fungi is largely as in *The Fungi of Manitoba*. Martin's *A Key to the Families of Fungi* (*System of the Fungi*) (1906) (*Ann. Bot. Soc. Lond.* 17: 62-113 (1906)) gives a good arrangement of the fungi, but was revised too late to follow here. The writers, however, have endeavored to use conservative taxonomy throughout. They have followed, more or less accurately as well as chosen, the various specialists on certain groups of North American

fungi, as is indicated in Section XIII. The genera and species are listed alphabetically under orders or families, etc., the aim being to achieve a compromise between a natural arrangement and ease of location of species.

The "standard" names of hosts are usually used. Gray's *Manual of Botany*, seventh edition, is followed, except where other names are used in *Seymour's Host Index* compiled at the Gray Herbarium. Bailey's *Manual of Cultivated Plants*, Britton and Brown's *Illustrated Flora of the Northern States and Canada*, Hitchcock's *Manual of the Grasses of the United States*, and other works have been consulted, especially Rydberg's *Flora of the Prairies and Plains of Central North America*, since this is the only manual that covers western Manitoba and southern Saskatchewan. We have endeavored to transfer many of Rydberg's names to more "standard" names. Much difficulty has arisen over host names; for in Manitoba at least, the phanerogamic flora is inadequately known, and it has frequently been necessary to struggle with the name for the host as well as that for the fungus.

The distribution within the Province is known for few of the fungi included. Most of them are undoubtedly widespread in the areas in which the proper hosts or substrata are present (see Section V on Distribution). Localities of collection are given when only one or a few are known, otherwise a generalized statement is made. By referring to the map or to Sections III and IV one can casually find reference to the type of habitat of a fungus recorded. The dates of collection are included only when they may be of interest or significance.

The list of Dermatomyces is revised from data by Drs. Davidson and Gregory. The Lichens are not included, since there is little to add to the list previously (71) presented.

II. THE NATURAL FEATURES OF MANITOBA

A glance at a map shows that Manitoba extends from the 49th to the 60th parallel of latitude, a distance of more than 760 miles. The writers have not been north of the 54th parallel, and there are few records of fungi from that mycologically interesting region comprising more than half of the Province. Southern Manitoba is approximately at the geographic centre of North America.

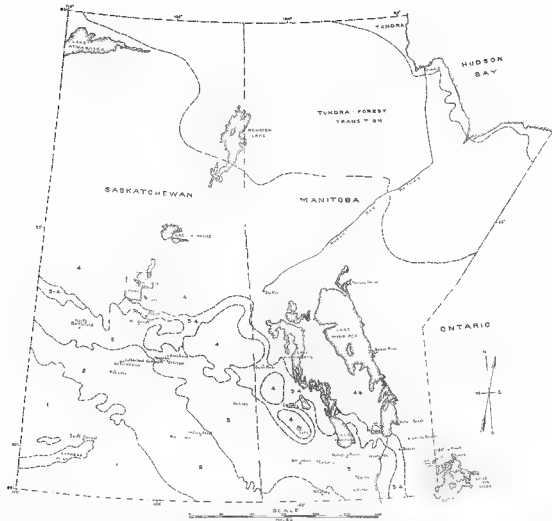
The area of Manitoba is 231,832 square miles, of which Lake Winnipeg occupies over 5,500 square miles, and other lakes 10,000 or more square miles. This vast area contains a comparatively limited phanerogamic flora, owing to its high altitude, the cold waters, and the lack of greatly varied physiographic features. There are known in Manitoba approximately 1,150 species of Angiosperms growing without cultivation; 12 of Gymnosperms and 42 of Pteridophytes. The limited flora of vascular plants inevitably limits the flora of fungi. Nevertheless, since the remains of higher plants are decomposed, there are many saprophytic fungi, and many parasites follow their hosts nearly or quite to their northern limits. Manitoba includes not only a part of the northern limit of many plants of central North America, but also part of the western limit of many eastern species, and of the eastern limit of certain western species. Manitoba and Saskatchewan are areas of considerable mycological interest.

The Host Index near the end occupies most of the trees, shrubs, and important cultivated plants of Manitoba, but perhaps only a third of the native herbs, since these for the most part have not been examined intensively for fungi.

The rocks exposed at the surface over much of Manitoba are the original Pre-Cambrian rocks. But the vegetation is very recent: all plants now present must have arrived since the last Pleistocene glacial ice melted and disappeared some 25,000 years ago. The great majority of the fungi of Manitoba have been collected on ground formerly covered by glacial Lake Agassiz.

Manitoba ranges in elevation from sea level at Hudson's Bay to about 2,600 feet in the hills along the western boundary. Our collections were mostly made at 700 feet above sea level around Lake Winnipeg to 750 feet at Winnipeg and vicinity, but many were obtained at 1,100 to 1,200 feet at the Lake of the Woods and Brandon, and as high as 2,200 feet at Clear Lake.

The precipitation in Manitoba is frequently too small to provide optimum conditions for fungi. It ranges from an annual average of 16 inches in the southwest to 22 inches around Winnipeg and in eastern Manitoba. The humidity of the atmosphere is generally low. The temperatures



MAP TO SHOW SOIL AND VEGETATION ZONES OF MANITOBA AND SASKATCHEWAN

1 = Short-grass prairie = brown soil zone. 2 = Intermediate prairie = dark brown soil zone. 3 = Tall grass park region = black soil zone. 4 = Wooded regions = gray soil zone. 5 = Barren, or soil high in lime. See sections II to IV for further data. The map was made by the Soils Dept., Univ. of Man., the data for Saskatchewan were provided by the Soils Dept. of the Univ. of Sask. The lines just southeast of The Pas are tentative, and of course there is not a sharp dividing line between zones.

show the usual sub-tropical variation from 30° or even 100° F. in summer to 20° or 40° or more below zero in winter. The average average at Winnipeg is 35° F. Above during more than a third of the year the fungi expand their activities because of heat, they must reckon up with the accumulated work during the remainder of the year, and a period of damp weather may fill the weeks and months with work in fact. Pruning is especially necessary where continuous vegetative propagation is impossible. In other words, western Canada provides better than average conditions for obtaining fungi in the sporulating, identifiable condition.

III THE FUNGI OF CERTAIN AREAS IN MANITOBA

Most mycologists who consult themselves will not be interested in the exact spot in Manitoba or Saskatchewan in which a particular fungus has been collected. However, place or places of collection, of some statistical grouping, may be given for each species cited, excepting certain species in rural areas. These localities are indications of which places in fact the species occur, and there is the type of soil, vegetation, etc., with which various fungi are associated. The areas in Manitoba surveyed approximately for fungi are characterized briefly here. Further details are given in the preceding edition.

1 The University of Manitoba now has its headquarters in the site formerly called the Manitoba Agricultural College, and therefore the abbreviation "U. M. C." is now used instead of "M. A. C.". This location is on the bank of the Red River about four miles west of the mouth of the city of Winnipeg. Excellent collecting ground is available there at the close of the herbaceous. This area of approximately one square mile consists of almost fields and of one of the best disturbed sites here of woodland along the whole length of the Red River. The soil is clay, original, to the bed of Lake Agassiz, a recent addition, from the northern river. The trees are in deciduous and *Populus tremuloides* and *F. balsamifera* predominating, but there are also many *Fraxinus pennsylvanica*, *A. nigra*, *Q. macrocarpa*, *T. canadensis* and *Rubus* spp., and some *Fern. communis*. The numerous shrubs and herbs present in this area make a total of almost 100 species of vascular plants, some present without cultivation, some part of the plants cultivated out of doors in Manitoba are grown there. In this area listed as "I" over about 1,800 species of fungi have been collected (see Section XI).

Locations 20, Northwest Winnipeg and 21, both are along the Red River. 1 urban and plains on the Assiniboine River, such as Portage and Emerson have a hard wooded vegetation. Brandon is on the Assiniboine River, but there the dry regions of southwestern Manitoba is included.

2 Lake Winnipeg is surrounded at the southern end by marshes or deciduous woods. At Victoria Beach the *Carex* spp. are common, and the soil varies from pure sand to clay with an occasional interspersed of *Prun. umbellata* bark. *Fern. fructicosa*, *Aster laevis*, *Pasp. arundinaceum*, *F. nemoralis*, *Fern. communis* and the *Salix* spp. are present in the wet of from green glaucous present at the University, but *Fern. communis* is absent. The shrubs and herbs are likewise more varied and fungi as well. The *Fraxinus* and several *Fraxinus* are present. About 400 species of fungi have been collected during short visits to Victoria Beach. The *Hymenomyces* flourish there in a damp autumn.

Portage River, halfway up Lake Winnipeg on the east side, has much the same flora as Victoria Beach, but more extensive of oak, and there are more mountains of fungi, which occur in depressions of the forest of oak. At the mouth of Portage River there is a Port of the Hudson's Bay Company, a summer Inn, and a village of 400 people, 200 persons, mostly Indians. From both sides of the river the general forest extends, which is a good place for mycologists.

Victoria Beach, about 20 miles north of Winnipeg on the 10th parallel, is on the Nelson River, a few kilometers north of the mouth of Lake Winnipeg. The topographic, vegetation and population are similar to those at Portage River, the vegetation is slightly less extensive. *Quercus macrocarpa* rarely seen at Portage River, present at Victoria Beach, as is *Fern. communis*. Nearby 10 are the best results on three occasions, each one being, and about 200 species of fungi have been collected, several of which are of especial interest. It is the most northerly as in Manitoba in which extensive collecting has been done.

Matlock, Winnipeg Beach, and Cuthbert, on the west side of the southern part of Lake Winnipeg, have provided a few records of fungi, but the flora at these points is not much different from that along the Red River.

3. **Eastern Manitoba**, in this work referring to the mixed coniferous and deciduous woods beginning about thirty-five miles east of Winnipeg, has topography like that from Victoria Beach northward. The vegetation also is similar to that of Victoria Beach and Berens River, but the trees are slightly larger, and there are to be found in addition *Thuja occidentalis*, *Pinus resinosa*, *Populus grandidentata* and, in the extreme southeastern part of Manitoba and adjacent Ontario, *Pinus strobus*. The Winnipeg River runs through eastern Manitoba, and Lac du Bonnet is an expansion of that river. The points visited have been Lac du Bonnet, Point du Bois, and, especially areas near the main highway passing through Neaupour to Whitemouth, Kenora, West Hawk Lake, and on to Keewatin and Kenora, on the Lake of the Woods. Vision is south of Neaupour, Ungod is just over the border in Ontario, and Mank is on the railway north of Kenora. Indian Bay is on Shoal Lake, connected with the Lake of the Woods but in Manitoba. Keewatin, Kenora, and Mank are a few miles with in Ontario, but the fungi found at these points are included as Manitoban, since there can be little or no doubt that any fungus present would have a range extending into the identical terrain of eastern Manitoba. It is much less misleading to record a fungus from these points as from Manitoba than to record it as from Ontario, for one naturally thinks that "Ontario" refers to an area more than a thousand miles southeast of Kenora. Before the recent construction of the highway eastward into Ontario, the flora of eastern Manitoba could be studied conveniently on a by travelling on to the pleasant stations at Mank or Kenora.

4. **Clear Lake**, in the Riding Mountains National Park is in western Manitoba, north of Brandon. This beautiful spot, on a plateau about 2,200 feet above sea level, has extensive mixed woods and damp spring-fed glees. It has only recently become easily available to travellers, and only two short mycological excursions have been possible. It is sure to become better known in the future.

5. **Southwestern Manitoba**, the area south and west of Carberry and Brandon consists of expanses of prairie or "Park-land" with clumps of trees, and is frequently dry, but in a wet season many interesting fungi are to be found. The similar prairies of southern Saskatchewan have received rather more attention from mycologists.

A few fungi have been collected in western Manitoba north of the prairie and of the Riding Mountains, e.g., at Dauphin and Swan River. These areas are not greatly different from those around Winnipeg.

6. **Churchill**, at the terminus of the Hudson Bay Railway is Manitoba's seaport near the 59th parallel. Short visits have been made to Churchill by Drs. Margaret Newton and F. H. Gregory, and these mycologists have also made collections along the railway. Mr. Wm. Gossow has collected several fungi near Churchill, and Prof. V. W. Jackson a few from The Pas northward. The northern part of Manitoba is, however, relatively unknown mycologically.

IV. THE FUNGI OF SASKATCHEWAN

BY R. C. RUSSELL

Following the generous invitation of Dr. G. R. Fisher to publish a list of fungi which have been collected in Saskatchewan with the revised edition of *The Fungi of Manitoba*, as complete a list of these collections as is possible has been compiled, and is now combined with the Manitoba list. It will become evident upon careful scrutiny, that the Saskatchewan collections have been built up by men with a distinct leaning toward plant pathology, for the parasitic fungi are much more adequately represented in the list than are the saprophytic fungi. There follows a brief account of the mycological work which has been conducted in this Province and of some of the features of the topography, soil, and flora.

A few incidental collections of fungi were made by Prof. T. N. Wiling of the University of Saskatchewan between the years 1910 and 1920. He was also a pioneer in the writing of plant pathological literature in Saskatchewan (57). The systematic collection of fungi in this province began with the establishment, in 1917, of the Dominion Laboratory of Plant Pathology in western Canada, with the chief station at Brandon, Manitoba, and a sub-station at Indian Head, Saskatchewan. In 1918, co-operation with the University of Saskatchewan at Saskatoon was arranged and the chief station was removed to Saskatoon in the spring of 1919. Mycological herbaria

were developed in the Dominion Laboratory and also in the Biology Department of the University. Collections of fungi were usually shared. With very few exceptions, specimens of the fungi noted for Saskatchewan are to be found in one or both of the above-mentioned herbaria. Permanent or temporary members of the staff of the Dominion Laboratory of Plant Pathology who have served here for periods of longer periods of time between 1917 and 1930 and who have contributed toward the mycological herbaria here are Prof. W. P. Fraser 26-31, P. H. Cavers, Dr. D. L. Plowes 19, Margaret Newton 230, Dr. J. H. Cragg 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, P. M. Sainsbury, present address Cragg 11-19, J. W. Saunders, H. S. McLeod, R. R. Havel, R. C. Russell 16-20, A. Smith 26-29, J. L. Maguire 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

near the eastern border of the province to about 7 000 feet near the western border. This region is traversed by a network of streams and lakes. The three most abundant in this zone are *Picea canadensis*, *Populus tremuloides*, and *Picea canadensis*, but *Picea canadensis*, *Ulmus americana*, *Larix laricina*, *Populus balsamifera*, *Betula* spp., *Aspen* spp., and *Balsam* spp. are also present. Collections have been made in this zone at Waskesau Lake and other points within the Prince Albert National Park but most parts of this area and the rocky area to the north of it have never been visited by mycologists.

Zone 1 the Tall Forest Park Region, is composed largely of open moderate dotted more or less thickly with grasses but it also contains a few open places and some forested areas. The topography varies from level flats to areas which are sharply rolling where groups of hills such as the Touchwood Hills are present. In the forested flat above the grass is located the zone. The altitude of this zone varies from about 1 000 feet to 2 000 feet. Much of this zone is partly forested and the water from the accumulated snow and water collects in ponds in the spring time. These ponds are known locally as sloughs and they vary greatly in size according to the season of the year and the variation in precipitation in one year to another. Within this zone there are also a few lakes of considerable size such as the Quapp Lake. Apart from the two branches of the Saskatchewan River there are several creeks such as the Battle River in the west and the Quapp River in the east which develop a considerable flow of water in the spring and certain seasons. The predominant tree in the grassy of this region is the trembling poplar, *Populus tremuloides*. Many shrubby species of willow are present as well as a few other species of poplar and several species of birch. In the southernmost part of this zone *Picea canadensis*, *Populus tremuloides*, *Ulmus americana*, *Quercus bicolor*, *Betula pumila*, *Larix laricina*, *Aspen* spp., *Balsam* spp., *Populus tremuloides*, *P. canadensis*, and *Picea canadensis* are present in a few locations, notably around Prince Albert. Humboldt and Prince Albert counties to the south and Indian Head to the north considerable collecting has been done in the districts comprising these places.

Zone 2 the Intermediate Prairie Region has a much higher precipitation. It is largely traversed by open rolling prairie and hills that has Zone 1. Some of the forest which growing districts of western Canada are situated in the level plains of this region. The altitude of this zone varies from about 2 000 to 3 000 feet. The vegetation consists of a few groups of hills such as the Touchwood Hills but both lakes and streams are much more numerous than in Zone 1. Moreover many of the lakes are very small and the streams are small in proportion to their length. Being much in a higher precipitation rate but also because of the lower precipitation, the climate is much more favorable to the growth of trees and bushes than in the highlands. In this zone are to be found in the forest. About the only trees growing in this zone except along some of the larger streams are *Populus tremuloides*, *P. canadensis*, and *Balsam* spp. *Balsam* spp. are in this zone and more collecting has been done there than in any other part of Saskatchewan.

Zone 3 known as the Short Grass Prairie Region, is longitudinal across the southernmost portion of the province. It varies in altitude from about 2 000 to about 3 000 feet. Its topography is characterized by greater differences in altitude than that of the three zones previously described. Portions of the larger valleys in this zone such as the Quapp River have been sampled. These levels are during a succession of relatively wet years also for during years of drought Zone 3 is almost entirely treeless except for isolated groups in the Wood Mountains and Cypress Hills and along streams. *Populus tremuloides*, *P. canadensis*, *Picea canadensis*, and *Picea canadensis* are the most common trees in this zone, but *Ulmus americana*, *Quercus bicolor*, *Betula pumila*, *Larix laricina*, *Aspen* spp., *Balsam* spp., *Populus tremuloides*, *P. canadensis*, and *Picea canadensis* are also present in a few locations along the streams at lower altitudes. The arid and nature of this zone does not so much to lower precipitation as to a higher precipitation rate. The warm winds blowing in from the south and the melting snow in summer are very prevalent in this area. Hence the forest contains more plants of a semi-arid type than that of any other zone in the province. The Cypress Hills which are situated near the southwest corner of the province and which extend across the boundary of Saskatchewan is a very interesting collecting ground for botanists as the flora of this region includes many species found in more mountainous regions in the south and west. This is the only place in Saskatchewan from which the ridge pole pine has been reported. The plateau at the top of these hills rises to a height of about 4 000 feet. According to geologists the higher levels of the Cypress Hills have not been so thoroughly glacialized as the remainder of the province. A few collections of fungi have been gathered in this district and it seems probable that many interesting fungi

will be found there in the future. Sporadic collections have been made in other parts of Zone 1 but much fewer collections have been made here than in Zones 2 and 3.

In the matter of precipitation and rate of evaporation the climate of Saskatchewan is even less favorable to the development of fungi than that of Manitoba. For a period of 31 years the average annual precipitation has been 14.34 inches at Saskatoon and for a period of 28 years it has been 18.32 inches at Indian Head. A few places in Saskatchewan have received slightly lower or higher precipitation than these but Saskatoon and Indian Head represent nearly the two extremes as far as available records go. In Zones 2 and 3 there is a tendency for the precipitation to be higher in the southeastern portion and lower in the northwestern portion of each zone. As pointed out above, the rate of evaporation has a great influence on the vegetation resulting from any given amount of precipitation and the rate is much higher in southwestern than northeastern Saskatchewan. The amount of precipitation at any given place varies greatly from year to year. For example, the total precipitation has varied at Saskatoon from 10.38 inches in 1907 to 21.28 in 1927, and at Indian Head from 9.02 in 1931 to 26.92 in 1904. Extreme and rapid variations in temperature are of common occurrence in this province. In certain years there is a maximum variation from 50° F. in the winter to 100° F. in the summer. However a great number of species of fungi are able to survive the rigors of the climate and flourish in Saskatchewan during the periods when environmental conditions are favorable to their growth.

V. GEOGRAPHICAL DISTRIBUTION

A careful mycological survey of a region provides data on the geographical distribution of the fungi. Manitoba and Saskatchewan are favorably located for such surveys. The list of Manitoban fungi has already been used as a basis for study of the problems of distribution of fungi. It was pointed out in the previous edition (71) that about 60% of the fungi then known in Manitoba were known also in Europe, whereas less than 22% of the native phanerogams occurred also in Europe. After further study this comparison of the distribution of fungi and phanerogams was expanded into a paper (69) in which the distribution of various groups of fungi was considered, and the available data summarized as follows: the total number of species of fungi on earth is of the same order as the total number of species of phanerogams, but in any particular state or country the species of fungi outnumber the species of phanerogams because of the wider average distribution of the fungi; the smaller the area surveyed, the greater the preponderance of species of fungi; the fungi are predominantly associated with the phanerogams and their remains; epiphytes usually have a wider distribution than parasites, but even obligate parasites commonly have a host range which gives them a wider distribution than that of their individual hosts; the distribution of hosts and substrata has more influence than climatic factors on the distribution of fungi.

A discussion of the distribution of the fungi is given also in *The Fungi of India* by Butler and Ruby (2). Mycological comparisons of India with Manitoba, and of India with Europe, indicate clearly the wide distribution of fungi: about 13% of the fungi found in Manitoba have been found in India, whereas the percentage of phanerogams common to the two areas must be much smaller.

The influence of climate on the distribution of fungi requires further analysis. It is evident that climate does limit the spread of various fungi, and affects the nature of the fungus flora. If one compares the list of fungi in *Mycological Excursions of Venezuela* by Chardon and Toro, with the present list, he will find only a small percentage of fungi common to both lists, and several of these are on cultivated plants. If we obtained at a high altitude in Venezuela there is without doubt a larger proportion of fungi than of phanerogams common to Venezuela and Manitoba, but Venezuela has a flora of fungi very different from that of Manitoba. This is probably due in part to the difference in climate, and in part to the difference in hosts.

South Australia has a flora of phanerogams with species nearly always different from those of Manitoba, but there is considerable similarity in the genera and families. Dr. Cleland has recently published *Fundamental Mushrooms and Other Larger Fungi of South Australia*. Many of the fungi are species found in Manitoba. The following table was made from Part II of Cleland's work and the records here presented for Manitoba.

TABLE I
COMPARISON OF FUNGI COMMON TO SOUTH AUSTRALIA AND MANITOBA

Group	Total in S. Aust.	No. common to Man. & S. Aust.	Total in Man.	Man. species to S. Aust. %	S. Australian species in Man. %
Ascom.-Tram.-Doer	19	6	36	31.6	26.8
Thelophomaceae	23	6	132	27.3	4.5
Clavariaceae	16	2	25	12.5	6.0
Hydnaceae	19	4	51	46.0	7.8
Polyporaceae	65	16	165	18.2	13.2
Gasteromycetes	108	17	40	15.6	47.5

South Australia has a more varied flora of Gasteromycetes than has Manitoba, perhaps Manitoba has more varied Thelophomaceae. But the widely separated areas have similar floras of fungi and many species in common. About 18% of the Polyporaceae are common to both areas, but only two species are recorded as common to this list for Manitoba and to that of Overholts in *Mycological Explorations of Venezuela*.

It is hoped that mycologists who are studying certain groups of fungi may find the records in this publication useful in determining the geographic distribution of species. It will be understood that a species is not necessarily absent from Manitoba or Saskatchewan because it is not listed here, and in a few cases may not be present even though listed, since some errors of determination are inevitable. In *Diaportha*, for example, two species formerly known only in Europe are included. Dr. Wehkeyer comments in his letter on the value of such Canadian records in adding to the knowledge of the distribution of the fungi.

Saprophytic fungi must develop upon dead vascular plants and their remains, however far their substrata may extend, but parasitic fungi may sometimes be left behind as a host thus out near the end of its range. Thus, for example, *Tilia americana* is near the end of its range at Winnipeg; its foliage is almost free from parasites, but numerous saprophytic fungi have been collected on dead parts (see Host Index). Some of these saprophytes, however, may not be especially adapted to *Tilia*. Species of *Populus*, on the other hand, are predominant around Winnipeg and fungi capable of attacking the remains of poplars must find much scope for their activities, as well as much competition. The Host Index provides good evidence for the wide distribution of fungi.

The host associations in western Canada as elsewhere determine the type of fungus flora to be found. The fungi in the deciduous woods around Winnipeg are different from those found in the coniferous forest forty miles eastward, but the fungi 300 miles north in coniferous woods are very similar to those found in such woods in southeastern Manitoba. There is a vast difference between the fungi found on a prairie and those found in an adjacent area of woodland.

VI. IMMIGRATION AND ECOLOGY

1. *Immigration.* All plants, as remarked above, must have migrated into Manitoba during the period of approximately 2,000 years since the Glacial Period came to a close. Fungi and higher plants are still arriving. Within the last century man has introduced many crop plants into the Prairie Provinces and has brought in weeds and parasitic fungi unintentionally or the latter may have arrived by their own methods of distribution. In the *Fungi of Manitoba* (see also 72) several species of fungi were recorded as having arrived apparently within the preceding decade. These species included *Uromyces capitatus*, *Puccinia Anemones*, *P. Sorgho*, and *Uromyces Trifolii*. All these fungi have remained to take toll of their hosts. Since 1929 *Septoria Caraganae* has been found, first in Saskatchewan then in Manitoba, and appears to be established. *Aspilota cynosuorum* was first reported from Saskatoon in 1932, and was injurious in 1933 and 1934. *Puccinia Waltheriana* finally became established on the grounds of the University of Manitoba in 1933, and has been injurious since.

Seed plants dispersed "naturally" move rather slowly, and usually remain to hold the new territory they have won. But species of fungi can travel relatively rapidly and far by air, although they may not be able to tide themselves over a long winter. The outstanding example is *Puccinia*

grasses, which arrive each year cause much injury and then die out, owing to the fact that the hibernia is almost and the trophopores die during the winter or spring. Certain other species rarely perhaps follow the same procedure. Thus *Puccinia nemata* was first found in small amount in 1922 then not again until 1927 when it was abundant on barley; it was common in 1930 but again in 1931. *Puccinia nigra* developed in quantity on the less cultivated grass plants in 1927 but it did not live through the winter and has not been seen since. Evidently the species were carried in by the air in 1927. *Puccinia repens* also appeared in 1927 remained permanently on dried potato tubers over the winter and was prevalent in eastern Manitoba in 1928. These dry summers must have prevented further development for it has not been seen since 1928. *Uromyces viciae* var. *Medicaginis* was found in small quantity in 1931, but did not become established for it has not been found during the past five summers.

The fungi just mentioned all attacked cultivated plants upon which it is easier to determine temperature or permanent immigration of fungi. It seems likely that parasites of native plants and certain saprophytic fungi are still acting on western Canada, and that some of these also may not be able to persist. The List of Species records many fungi found but some or only in certain years; a few of these species may represent transient arrivals which have disappeared. However many fungi which are highly local, such as *Uromyces viciae* var. *Medicaginis*, *Polyporus comatus* and *Rhizoglyphus* *decoloratus* remain with or without fluctuating from year to year.

2 The effect of winter on fungi. Winter in Saskatchewan and Manitoba is a period of four or five months in which little or no fungal activity can take place in the open air. The temperature remains below freezing except for occasional days at the beginning and end of winter. A fungus in period must be able to withstand this long period of freezing and desiccation. However, the dried stems and usually the parasites are are collected during the winter with a blanket of snow that probably makes overwintering easier than at regions further south where no such freezing and thawing occurs during winter. When the snow goes in eastern Manitoba, spring has arrived and a fungus immediately begins its active life sustained by the melted snow.

The abundant fungi over winter demonstrate that winter is survived by most of them. It has been mentioned under Immigration above however that certain parasites cannot live through the winter. But other fungi such as *Botrytis* and *Helium* can live as perennial fungi. *Sphaeria* live as winter annuals and even fresh fungi such as *Polyporus* *brachyoides* and *Helium* *reticulatum* may be winter annuals. The rain caused in winter may transfer the fruiting of various Agaricales in spring. Many *Uromyces* are usually found in early spring sometimes before the snow will melt. The Bulger has demonstrated that *Ascomycetes* can withstand the temperature of liquid air for three weeks and that *Fusarium* *varicose* can remain viable for eight years in the dry atmosphere of a laboratory.

3 Saprophytic fungi. In *The Fungi of Manitoba* a section of four pages was devoted to saprophytic fungi. Further study has added a few species. In this edition the names of all saprophytic *Sphaeria* are taken from a careful study in *Botany* 2 and by less identified many from *fungi* and *fungi*. Saprophytic fungi are widely distributed (see *Vegetation* section for an extreme case) and beautifully adapted for perpetuation on their substratum. Several of these fungi are discussed in Bulger's *Researches on Fungi*.

The saprophytic fungi found are all recorded in the List of Species. The *Hyphomycetes* and species of *Ascomycetes* are present in the fungi inhabiting but there are also many *Microthyricetes*, *Microthyricetes*, *Microthyricetes*, *Microthyricetes*, *Microthyricetes* etc. which are usually or occasionally *Microthyricetes*. These fungi appear in some regularity in succession upon their substratum as is recorded in *The Fungi of Manitoba*.

4 Fungi developing upon other fungi. It is well known that certain species of fungi may develop as parasites of other fungi. The *Hyphomycetes* include a number of these species parasites on the fleshy or wood. *Hyphomycetes* and their hosts are listed in the Host Index. Much as *Uromyces* *comatus* and *Uromyces* *gracilis* usually develop on *Hyphomycetes* only after the latter have discharged most of their spores but *Uromyces* may grow over the gills of young *Agaricales*. Various saprophytic fungi develop on the dead tissues of other fungi.

Mythicism cultivation is rather extensive in and around Winnipeg but *Uromyces nemata* has not been found to be seriously attacked by parasite fungi. *Uromyces nemata* has not been found. Much damage *Uromyces nemata* and *Parasitism* *Uromyces nemata* occasionally develop in meadow beds and may cause injury.

Dactylon alone. *Tuberulina perniciosa*, and unidentified molds and bacteria may be found on older pastures of rye. None of the rye- or cultivated plants has been found to be checked appreciably by parasitic fungi.

Trichoderma lignorum was found (78) to develop as an active parasite upon mycelium of *Fusarium culmorum* and other soil fungi. It is considered to play an important part in preventing the dominance of root-rotting fungi in the soil.

Mycorrhizae-forming bacteria and spores of mycelia of certain fungi, and they play a part in the complex "balance of nature."

Lichens are sometimes parasitized by fungi, but the species have not yet been studied. Lichens are common as epiphytes on old woody fungi.

5 *Fungi attacking insects.* The peridial cuticulae of grasshoppers are invadited at least partially by *Ascomyces* (74), although unidentified bacterial parasites may play the larger role. *Ascomyces* *Muscorum* attacks longer flies, but not crickets, until they are about to die from frost. *Ascomyces* *aphidis* may help control aphids in certain years. *Entomomyces* are sometimes killed by other species of *Ascomyces*. *Phoma* in *Ascomyces* and *B. deasei* have been found on dried insects and spiders, but the possible importance of these fungi in controlling insects in western Canada has not been investigated. *Lathroleptomyces* and *Conidiopsis* appear to be rare in the areas surveyed.

Insects are of interest to the mycologist also, because they may carry the pyrenospores which disperse the rye-rot (34-35) has shown. They are known to spread spores of many fungi. They also feed upon and destroy many species of fungi.

6 *The fungi of the soil.* During the past few years a special study has been made of the soil fungi in Manitoba by the recent apothecia assisted by M. Timmon and Professor N. Johnston. These papers (76-78, 79) have been published, which may be consulted for details. A synopsis (36-56) has studied *Pythium* and *Helicosticta* (*Ascomyces*) in the soil. The fungi identified from soil are all included in the List of Species.

There is a definite flora of fungi in the soil, consisting of species of *Penicillium*, *Aspergillus*, *Trichoderma*, *Cyphomyces*, *Fusarium*, *Cephalosporium*, *Alternaria*, and other Fungi Imperfecti, and of certain *Mucorales* especially species of *Mucor*, *Albugo*, and *Rhizopus*. The species of *Pythium* present are not obtained on the ordinary isolation plates.

Surface soils, the A and B horizons of a shallow silt loam, or cultivated fields contain from about 20,000 to 1,000,000 spores per square of half a meter in area per gram. The forest soils contain the larger numbers, and peat may have as many. The per cent of the average content of fungi usually decreases the 4 horizons from soil only about 60 to 90% spores per gram. Fungi capable of growing saprophytically are common in the A and B horizons. Some soil fungi, especially *Aspergillus* spp., flourish at high temperatures (37°C.), other fungi, such as certain species of *Cyphomyces* and *Penicillium*, can develop well at temperatures as low as 5°C.

Certain fungi parasitic on seed plants were obtained from soil. *Rhizoglyphus* *arbusculus* was isolated from virgin pine soil as well as from that of wheat fields. The species of *Fusarium* in virgin soil include *F. oxysporum*, *F. solanum*, and *F. avenaceum*. *Marasmius* *ulmorum* also was isolated from the soil of wheat fields. *Ascomyces* *muscorum* was isolated from virgin soil.

Some fungi in the soil are able to grow parasitically on the mycelium of other fungi. *Trichoderma lignorum* was found to be particularly efficient in this parasitism, and is considered to assist in the "biological control" of pathogenic fungi in the soil.

Many soil fungi are included in the List of Species in their designation as to the locality from which they were isolated. The maps to now obtained are on maps of the University of Manitoba. All species recorded are probably widely distributed.

7 *The fungi in butter.* Molds sometimes develop in butter held for some time in storage or transportation. An investigation by Harty, Jamieson, and Timmon (77) showed that a considerable flora of fungi, about 75 species was present in the samples of butter. The latter specimens were able to produce butter almost or quite free from spores. The fungi in butter are of course principally common molds from the soil on plant parts, and are seldom important unless the butter is held in storage.

8 *The fungi on cereals.* The importance of cereals to the agriculture of the Prairie Provinces has led plant pathologists to make a thorough study of the fungi associated with them. The List of Species includes brief summaries of these various species of fungi. The rusts, smuts,

and other fungi parasitic on the aboveground parts of cereals cause much damage. The fungi parasitic on the roots of cereals also cause injury, and in making large numbers of isolations from roots various "soil fungi" not actively parasitic are certain to be isolated. The List of Species includes references to several fungi found on the roots of wheat, oats, barley, or other grasses. Thanks are due Drs. W. L. Gordon and J. E. Macnuck at Winnipeg, and P. M. Simmonds and Mr. R. J. Ledingham at Saskatoon, for providing lists of these fungi associated with cereal roots. A glance at the list of fungi found upon *Trifolium arvense* (see Host Index) will help explain why the yields of wheat are sometimes low.

9. The rate of decay of fallen logs. Fallen trees decay with moderate rapidity in Manitoba, despite the fact that for four or five months each year decay is halted by frost. A log of *Populus*, lying when cut down in the winter of 1923-24, about 1½ feet in diameter and 6 feet long, was left in the woods. It is still moderately firm after thirteen years despite the activities of *Fomes opaculus* and various other fungi. Decay probably proceeds with "normal" rapidity except in winter. It is stated (Leavitt, C., *Forest Protection in Canada*, 1912) that "in the spruce region of the Adirondacks, tops properly topped and on the ground will practically disappear by decay in from 6 to 12 years." Few data are available from western Canada.

VII. NEW SPECIES OF FUNGI

It is inevitable that intensive search in regions far removed from mycologically well known areas must result in the finding of undescribed species. The Fungi of Manitoba included descriptions of the following new species, the authors being Dearness and Bisby unless otherwise stated:

<i>Licoa foveola</i>	<i>Cephus longipes</i> Buller
<i>Pyrenopeziza cordata</i>	<i>C. parvisporae</i> Buller
<i>Stictis curtispora</i>	<i>C. stellata</i> Buller
<i>Euchaena Populi</i>	<i>Ceroasporium Lappaceae</i>
<i>Graphyllum manitobense</i>	<i>Ceroasporium</i> Gen.
<i>Haltourella Linnaea</i> Dearn.	<i>C. Nealia</i>
<i>Curreyella Bisby</i> Dearn.	<i>Romularia coccinea</i>
<i>Ceroaspora manitobensis</i>	<i>R. eximia</i>
<i>Didymella manitobensis</i>	<i>Scolecium Populi</i>
<i>Leptophaea rugosa</i>	<i>Trichosporium parvifolium</i>
<i>Metasphaeria querna</i>	<i>Colletotrichum Humuli</i> Dearn.
<i>Pyrenopeziza rugosa</i>	<i>Gloeosporium spadicum</i>
<i>Diaplothea Viburni</i>	<i>Marasmius Aquilegiae</i> Dearn.
<i>Diatrype Calceoli</i>	<i>Heteropeltella Viburni</i>
<i>Sporobolomyces albus</i> Romm	<i>Phyllosticta Cornu-canadensis</i>
<i>Hypochoa flavo-brunnea</i>	<i>Rhabdospora Viburni-Opyth</i>
<i>Hypoblaema longipes</i> (— <i>H. elongipes</i>)	<i>Septaria Giliae</i>

All these species are listed in this edition with further data whenever possible, and with changes of genus in two or three cases. Two new varieties were described, *Gaeumannia Ceph. var. circinata*, and *Pileurus absterculus* var. *marginatus*.

New species from Manitoba described previous to the publication of *The Fungi of Manitoba* are the following:

<i>Didymasphaeria manitobensis</i> Ell. and Ev.	<i>Marasmius Senchi</i> Dearn. and Bisby
<i>Corticium septentrionale</i> Burt	<i>Squiglossum rhizopodium</i> Dearn. and Bisby
<i>Psilopeziza odontoides</i> Burt	<i>Phyllosticta Pseudocephali</i> Dearn. and Bisby
<i>Pythogaster subcylindrica</i> Lloyd	<i>Septoria Senchi-arenensis</i> Dearn. and Bisby
<i>Ceroaspora manitobensis</i> J. J. Davis	<i>Stagonospora Ameriphae</i> Dearn. and Bisby
<i>Cylindrosporum ellipticum</i> Dearn. and Bisby	

These species will also be found in the List of Species. For the *Pythogaster*, see *Salicaria incrustans*.

Vanterpool and Ledingham (35) described *Lagena radialis* as a new genus and new species, and Vanterpool and Truett (36) *Pythium solutum* as a new species and *P. arthemenae* var.

considered as a new variety in their studies of the Phymomyces associated with coral roots in Saskatchewan. *Phymomyces stipitatus* is being described by Desmirex from Saskatchewan, and *Phymomyces Melnikovi* was published by Desmirex and Shadoff from Alberta. Brief notes on these fungi are given below.

Collections during the past six years have brought to light a few new species, but they will be described elsewhere except for *Leucospora Halimae* which is described below.

VIII. FUNGI APPARENTLY ABSENT

In *The Fungi of Manitoba* much surprise was expressed at the absence from the province of certain fungi common in other parts of North America. Only a few species were mentioned, for the really surprising point is that so many of the fungi known in North America have a range including Manitoba. When a fungus is absent it is usually because its host or substratum is absent. *Clathrus radiatus* was mentioned, but it depends largely upon the state of *Fagus* for its substrate here, and the beech is absent from Manitoba. *Polyporus* *sp.* just has been listed, and is noted in the next Section. The absence of *Imosporium* *sp.* and *Leucospora* was mentioned, they too probably depend upon phanerogams not present in Manitoba. Kaufman, *Agaricus* of *Agaricus* states for *Agaricus*. The present known range seems to be as far north as latitude 42°. If it really stops at the 42nd parallel of latitude it is clear that some flowering plant upon which it depends does not extend north of 42°. It is also unknown why *Sclerotium aurantium* and *Phoma coccinea* are not found, but some substratum restriction is suspected for the latter at least. *Sclerotium* *sp.* *Stropharia* *sp.* *Lepista* *sp.* and many other fungi appear to be absent for undetermined reasons, probably frequently because of the absence of various phanerogams.

Climatic factors as previously mentioned, see 68, may exert little influence upon the distribution of fungi. In other words, a fungus usually can adapt itself to any climatic conditions tolerated by its hosts or substrata, which are principally Spermatophytes. Nevertheless climate does affect certain fungi. It keeps *Phoma glomerata* out of Manitoba, and perhaps *P. muscicola*, and greatly favors *P. graminis*. It is noteworthy that conditions hours amongst abundant mushroom beds have failed to disclose a single specimen of *Volvariella* or *Boletus* *sp.* and only one of *Stropharia* *sp.* This may be because of climatic factors, but Dr. Desmirex finds them to be extremely rare in the damper areas around London, Ontario. Certainly the dry seasons, which render it more or less regular cycles in Manitoba, tend to preclude the appearance of many species, and may account for the complete absence of some.

Many fungi found in Europe or Asia are absent from North America, and vice versa, yet about half the species found in Manitoba are known also in Europe.

IX. RARE SPECIES

Several fungi are rare in Manitoba because of some host relationship. *Polyporus lignosus* has been found but once, but no chestnut and only one species of oak occurs in Manitoba, and in many parts no oaks are present. For the same reason, probably, *Polyporus resinus* is rare. *Polyporus* *sp.* *Polyporus* *sp.* *Polyporus* *sp.* have been seen rarely, perhaps because of some undetermined lack in host or substratum. *Polyporus* *sp.* is rare, but seen at least extremely green.

Climatic factors doubtless explain the rarity of certain parasites of cultivated plants, such as *Leptoglyphis* *sp.* *Leptoglyphis* *sp.* *Leptoglyphis* *sp.* and *Phoma* *sp.*

No explanation is apparent of the more or less common occurrence in Manitoba of certain species rare or unknown in other parts of North America, for example *Clathrus nebulosus*, *Crepidotus cinnabarinus*, *Clavaria* *sp.*, *Helvella* *sp.*, *Helvella* *sp.*, *Helvella* *sp.*. Possibly there is some substratum relationship, or perhaps insufficient collecting elsewhere in North America. *Polyporus* *sp.* presents a peculiar problem. Recorded from Manitoba and Saskatchewan, and probably from Europe and Japan, it is apparently not known in the United States. In Manitoba the fungus is widespread, yet evidently does not occur in the Red River Valley. A more thorough knowledge of this species would probably explain its distribution.

Several fungi given in the List of Species are rare not only in Manitoba but throughout North America. This is not surprising. The apparent rarity in some cases is due only to lack of knowledge of the exact places in which to look for the species. Most mycologists are grateful for the rare species, and would rather find a rare fungus than a new species.

X. ESTIMATES OF THE TOTAL NUMBER OF SPECIES OF FUNGI IN MANITOBA

In *The Fungi of Manitoba* estimates were made as to the total number of species present in Manitoba. These estimates were based upon numbers known in northern Europe, on Manitoba collecting records, and on comparisons with the fungi recorded from North Dakota. Further collecting during the past seven years has added over 500 species to those known in Manitoba, and the end is still far away. Little can be added to the estimates previously presented. There are probably at least five thousand species of fungi (as species are currently interpreted) actually present in Manitoba. The total may never, perhaps cannot ever, be known.

XI. STATISTICAL SUMMARY

TABLE II

SUMMARY OF THE NUMBERS OF FUNGI RECORDED IN MANITOBA AND SASKATCHEWAN

	At Univ. Man.	In Sask. only	In Sask. and Man.	Total in Sask.	Man. only	Total in Man.	Total included
Myxobol. Acrasiose	4	-	-	-	4	4	4
Myxomycetes	25	1	5	6	25	98	99
Bacteria	18	1	14	16	13	28	26
Phycomycetes							
Archimycetes	1	3	1	4	6	7	10
Oomycetes	22	8	20	28	22	43	51
Zygomycetes	32	-	5	5	42	47	47
Ascomycetes							
Plect. Eurosciales	10	1	4	5	10	14	16
Helvellales	10	-	4	4	17	21	21
Pezizales	212	4	31	15	153	167	171
Phan. -Hyssingales	18	3	5	8	28	37	40
Tuber, Perizetaceae	18	1	14	15	6	20	21
Hymeniales	23	2	3	5	27	30	32
Dothid. Microthy.	4	2	3	4	9	11	13
Sphaeriales-Laboul	280	22	51	78	207	226	280
Basidiomycetes							
Sporobolomycotales	3	-	-	-	3	3	3
Uredinales	24	0	22	26	20	42	43
Uredinales	85	37	106	146	47	186	192
Aster. Trem.-Oler	12	-	2	2	22	24	24
Telephoraceae	77	1	9	10	120	132	133
Cantharellaceae	11	-	-	-	25	25	25
Hydnaceae	19	-	1	1	60	51	51
Polyporaceae	69	-	20	20	85	106	106
Boletaceae	4	-	-	-	19	19	19
Agaricaceae	312	-	11	11	563	563	563
Gasteromycetes	19	-	8	8	31	40	40
Fungi Imperfecti							
Mucilales	275	14	79	80	305	380	394
Mucilales	33	2	17	19	48	66	67
Sphaeropsidales	385	15	69	74	181	240	255
Dermatophytes	-	-	-	-	11	11	11
Totals	1,327	133	478	596	2,152	2,638	2,701

From Table II it may be seen that the total number of species in each of the main groups is as follows: Myxothallophyta, 103; Bacteria, 26; Phycomycetes, 108; Ascomycetes, 593; Basidiomycetes, 1,204; Fungi Imperfecti, including Dermatophytes, 727. In a few cases entries under Ascomycetes are duplicated under the Fungi Imperfecti. The varieties are counted as distinct fungi, since a variety today may be considered a species to-morrow, and vice versa.

It will be noted that about 60% of all fungi included have been collected in the vicinity of the University of Manitoba, where the ground has been covered more thoroughly.

Several fungi enumerated as Manitoban in Table II above were collected just over the border in Ontario. Two of the Uredinales in the column marked "Saskatchewan only" were collected in Alberta. No entry in square brackets in the List of Species is counted here.

XII. HISTORY OF MYCOLOGY IN MANITOBA

A brief account of the development of mycology in Saskatchewan is given in Section IV. *The Fungi of Manitoba* gives details of the history of mycology in Manitoba up to the close of 1928. This historical account is here summarized and brought up to date.

The first definite observations of fungi in Manitoba were made by John Dearness, who in 1891 collected *Dedynophora mansuetoraria*, described in 1892 by Ellis and Everhart. Dr. Dearness found a few other fungi now known to be common, one being *Peridermium*.

Dr. Buller came to Manitoba in 1904, and has studied the fungi nearly every autumn and winter since. He has published many important facts regarding the biology of the fungi. His broad knowledge of the fungi, including many European species, has been of invaluable assistance.

The Cusack brothers of Freshwater have long been interested in natural history. The late Norman Cusack collected and made drawings of various larger fungi. Mr. Joseph Cusack has collected the rusts of the region, and Stuart Cusack has contributed to the knowledge of *Pezizomora tubicola* and the fungi stored by squirrels.

Professor W. P. Fraser spent the years 1917 and 1918 at Brandon, Manitoba. He collected and cultured a number of rusts, and since 1918 has continued his mycological work in Saskatchewan. His studies of the Uredinales have made possible the comprehensive list presented below.

Misses I. J. Connors and G. R. Busby arrived in Manitoba in 1920. Mr. Connors assisted Professor Fraser in his survey of the rusts of the Prairie Provinces and has done much mycological work before and since leaving for Ottawa in 1929. The Dominion Rust Research Laboratory at Winnipeg has continued with increasing activity since its establishment in 1923.

XIII. THE GROUPS OF FUNGI, AND ACKNOWLEDGMENTS TO MYCOLOGISTS

General observations on classes, orders, families, or genera of the fungi included are made here to avoid interpolations in the List of Species.

A list of fungi is of little value unless dependence can be placed upon the determinations. The writers therefore have sought expert opinion wherever possible, and are grateful to the mycologists now to be mentioned, who have spent much time and effort on specimens submitted to them. These specimens sent to other laboratories will facilitate further study of many species.*

The Myxobacteriaceae have been studied but little in Manitoba. The three species listed were determined at Winnipeg, and others have been seen. Careful search would no doubt bring to light several of the Actinaceae. *Dictyostelium* is fairly common.

The Myxomycetes have not been intensively collected in Manitoba. Nevertheless 92 species and 7 varieties have found their way into the herbarium. This is about 25% of the total known on earth. Marshall and Martin list 380 species in their recent book *The Myxomycetes*. This work and Lister's *Myxozoa* have been of great service. Dr. W. T. Elliott and Dr. John Dearness have examined many collections, and Miss Lister and Dr. G. W. Martin have determined a considerable number, particularly of the rarer species. The names of species can be considered correct unless doubt is expressed regarding them.

In *The Fungi of Manitoba* an attempt was made to summarize the Myxomycete flora of Canada, and it was found that 134 species and 15 varieties were then known for the Dominion. A few species are recorded here as additions to those previously known in Canada.

The bacteria parasitic on cultivated plants are included for the convenience of plant pathologists. Elliott's *Manual of Bacterial Plant Pathogens* has been used for identifications, but Miquela's system of classification is followed. Dr. W. A. F. Lingborg, of the Rust Research Laboratory at Winnipeg, has assisted in preparing the list. Several bacterial diseases are numerous to crop plants in Manitoba and Saskatchewan.

* Future students of mycology in western Canada might well issue requests similar to the *Fungi Debitorum* distributed by Breckin. Several fungi recorded herein could be determined only because the same species were sent out by Dr. Breckin for mycologists everywhere to study.

Theliophoraceae are very common on fallen wood in the great undisturbed forests of Manitoba. Dr L. A. Hart named a considerable number of species about 1892. During recent years, and particularly in 1915, extensive collections of Theliophoraceae were sent to Dr Irene Munn and Dr Malvern Nisbet, who very kindly studied them in collaboration with Dr J. O. Overholts and Miss F. M. Wakefield. Manitoba Theliophoraceae are now widely distributed in herbaria, and the names in the list of species can be considered accurate. The Theliophoraceae require much study with good herbaria and literature for correct identification. A few species are important to trees or timber; most of them play important roles in disintegrating woody tissue in the forests.

The *Leptostromaceae* are also present in numbers in the Manitoban woods. This family has not been studied carefully by the writers, but Professor W. C. Coker has identified most of the numerous specimens sent to him.

The *Hydnaceae*, particularly the difficult resupinate species, are also common. Dr F. H. Miller has identified nearly all the resupinate forms and some others. Drs. Peck and W. C. Coker have named Dr. A. Hart and the late G. Lloyd have each named certain stipitate or other species from Manitoba. The nomenclature of F. H. Miller is followed whenever possible.

The pileate *Polyporaceae* of Manitoba are evidently mostly known. Continued collecting during the past six years has added and set species to the list given in *The Fungi of Manitoba*. Dr. Munn has examined many specimens and practically every species has also been verified by Dr. Overholts. The genus *Poria* is common, but not adequately known as yet.

The *Boletaceae* gave much work until Dr. W. H. Sacc worked over the Manitoban collection. The list now given is somewhat more extended than the previous one and the species can be considered correctly determined unless a query is appended.

The *Boletaceae* and many *Agaricaceae* are restricted to the vicinity of certain trees or shrubs, with which they have an ecological or other individual relationship. Several European authors have presented lists of larger fungi to be found associated with certain woody plants. Dr. Butler has made a few similar studies, but little of this nature has been done in Manitoba.

The *Agaricaceae* live in the dead wood forests which stretch across eastern Manitoba and northward to northern Saskatchewan. Fewer species are found in deciduous woods such as those around Winnipeg, and fewer still outside the woods. In dry seasons the mushrooms are relatively scarce, but in a mild autumn after a damp summer their abundance is comparable to that in northern Europe, the northwestern United States and adjacent Canada, and other good collecting areas.

The *Agaricaceae* have had to be determined for the most part by the two authors long resident in Manitoba, who could study fresh specimens with the aid of the good library facilities provided largely by A. H. R. Butler. He has carefully examined mushrooms in Manitoba each autumn from 1904 to 1915, and has been able to recognize many species as identical with those he knew in Europe. G. R. Fisher has struggled with many with microscope and keys for identification. Dr J. B. Lange of Denmark, the well known authority on the agarics, spent several days in the laboratory and field in September, 1915, and stayed with many of us about 10 days. The late C. H. Kauffman examined a few specimens. John Swenson has been able to identify several. Dr. Alexander Smith has gone over the species of *Myrica* and several other genera, and Dr. J. O. Overholts has identified most of the species of *Phaeo*. There are undoubtedly more than a thousand species of *Agaricaceae* in Manitoba and 300 have been named. The present list has been made as accurate as possible. The more doubtful ones are queried, and dried specimens are available for experts to study in future. The list of species is given in the belief that it will be useful to students of the *Agaricaceae*, and adds to the knowledge of distribution of these fungi. Kauffman's ignorance of *Macopus* has been followed for the most part for names and authorities of species, but many other works have been used in their identification.

Amorpha nivalis is common in deciduous woods in Manitoba. A few other species of *Amorpha* are to be found in autumn, principally in mixed woods. No case of mushrooms poisoning in Manitoba has been noted since that in 1925 described in the preceding edition, in which seven members of one family died.

Armillaria mellea is very common, but other species of this genus are seldom found. *Cathartella* is probably represented by few species aside from the half dozen listed. *Clitocybe* and *Callypta* would, however, have at least double the present number of entries if these genera were

thoroughly studied. Attempts have been made to key out most of the species of *Hygrophorus* found, but not always with success; there are several species of these fine mushrooms etc. to be identified in Manitoba. The genera *Lactaria*, *Lepista*, and *Marysina* are by no means adequately worked out in the province. Despite considerable collecting of *Mycena*, and the efficient efforts of Dr. A. H. Smith in determining the species, several remain undetermined. The species of *Russula* are very common, varied, and perplexing, in recent years this genus has been largely ignored despite its striking conspicuousness in the forests. *Tricholoma* also should have many more species entered.

Many of the *Rhodosporae* have been discarded because they could not be determined with certainty. Only *Phorus* and *Volvaria* are presented with an approach to completeness. Many of the *Rhodosporae* appear to be rather rare.

In the *Osteosporae* the genus *Cortinarius* has probably three times as many representatives as are given in the somewhat lengthy list below. This fine but large genus is not unduly difficult if one can get up his laboratory in the woods and study the species as they develop, but specimens brought back from a collecting trip are hard to reach the mushroomer's under-tillied. In *Cortinarius* and *Tricholoma* in other genera also, one meets species that do not seem to fit any key; there are probably a good many undescribed species of *Agaricaceae* in the unexplored Canadian forests such as those in Manitoba. It will be some time before mycologists in North America can have an adequate idea of species that are uncommon. For example, an *Arctomyces ciliatus* and *Lactaria scabra* are in Manitoba, but which, in contrast to those species, have no striking features to draw them into the catalogue. The species of *Cephaelis* and *Ganoderma* found would usually be determined, but *Heterotheca* and *Inocybe* require much more work. The determinations of Dr. L. O. Overholts make *Phodinus* one of the better known genera of *Agaricaceae* in Manitoba.

Of the *Psathyrosporae* *Psathyra* and *Psathyria* need study in Manitoba. In the *Mesomycetozymaceae* studied by A. H. B. Butler and W. F. Hanna have clarified the difficult genus *Coprinus*, there are few areas in the world where *Coprinus* is known so well. The species of *Gomphidius* do not seem to be very well marked, and species of *Panaeolus* cannot always be identified.

The *Cantharellales* are classified as in *The Fungi of Canada* of the *Canad. Bot. Bot. Soc. Can.* and *Canada's Fungi* and *Canad. Bot. Bot. Soc. Can.* as far as Manitoba species are concerned in that work, and these specimens have examined many collections. Certain earlier collections were sent to be identified by Dr. J. J. Davis. Dr. Zeller has identified the two species of *Hymenogasterales* which have been found in Manitoba, and *Cantharellus* are rare in Manitoba. The *Lyophorales* occur in these woods abundantly, and the cosmopolitan *Nidulariales* are present.

The *Chaetomiales* fungi (Imperfecti) are represented in the list more particularly by parasitic or soil-inhabiting species, but many other forms are also included. Little has been done in western Canada to connect these fungi with their perfect stages. Every dead stem which is found to bear a *Chaetomium*, or other conical fungus, and usually several of them, all of these is little point in attempting to list them in the present state of our knowledge. When a *Chaetomium* or *Chaetomium* form is found, it is furthering in North America, then these fungi (Imperfecti) can be studied further.

Dr. J. J. Davis of Wisconsin has identified a few parasites, Dr. Thos. all species of *Aspergillus*, *Penicillium*, and similar forms. Dr. W. L. Faedon has studied a very large number of isolations of *Fusarium* from Manitoba and Saskatchewan and, with assistance when necessary from Dr. C. D. Shubertoff and H. W. W. Schenck, has identified them. Noteworthy progress has been made with this difficult genus. The species and varieties are noted accorded to the nomenclature of *The Fungi* by W. L. Faedon and Shubertoff. Dr. C. D. Shubertoff of Dr. W. G. Bolheim has examined nearly every species of *Claviceps* and *Clavicipitella*. Dr. J. F. Macdonald has studied all species of *Helioglyphoglyphum* noted, and has helped with several other fungi. Mr. F. W. Mason of the Imperial Mycological Institute has helped the writer in many ways, particularly with identification of difficult *Dermateaceae* and Dr. R. P. Wainwright of the same Institute has studied several cultures. Dr. Hargreaves has particularly studied very many of the Fungi Imperfecti. His summary (1) of the *Micrococcales* has been of much help.

XIV. VALE I

All five of the authors of this work have collected fungi in Manitoba. A glance at the pages preceding or following will give anyone with the instinct of a naturalist some idea of the pleasure that has come from finding so many fungi in the endless woods and fields, from studying them in the laboratory, from obtaining a more comprehensive idea of the fungus flora, and from broadening the conceptions of the distribution of the fungi.

In some quarters there has been a disposition to look upon collecting and determining fungi as "old-fashioned" or distasteful, or worse, but there is a growing realization that the workers of half a century or more ago left some of this work undone. Certainly no one, up to a few years ago, had any idea what fungi, if any, occurred in Manitoba and Saskatchewan. A sound superstructure of phytopathology requires a firm foundation of mycology, and much study of the fungi of specific areas is needed in many parts of the world.

Now all five of the authors have left Manitoba, although they hope to see fungi in or from the province in the future. But the work will go on in Manitoba and in Saskatchewan.

XV. LIST OF SPECIES

The fungi listed are from Manitoba whenever no abbreviation is given for a province, except that species marked "Mn." or "Ks." are from adjacent Ontario. If found in both Manitoba and Saskatchewan or in Saskatchewan only, the abbreviations are added to specify the province. "Univ." refers to the vicinity of the University of Manitoba, Winnipeg. Measurements and other data given refer to Manitoba or Saskatchewan collections. Often spore measurements only are given at the end of an entry. Rusts, smuts, and many common fungi need descriptive data only in occasional instances, and the entries in some groups are based largely on reports from specialists. The letter "c" is used for cures.

Efforts have been made to have all citations correct and consistent. Miss B. M. Wakefield and Mr. I. L. Connors have helped materially with the citations. It has been particularly difficult to decide upon proper capitalization of certain names of fungi and of hosts. It might be well to designate all specific names of plants, as is done by an increasing number of botanists. The name of the person who identified a species is usually given only with the rarer fungi. Few species are illustrated here, but Dr. Buller and others have presented many illustrations of Manitoban fungi as noted herein. Many thanks are due to Mr. I. L. Connors and Dr. Leon Mounse for reading the manuscript critically, and to Dr. W. F. Hanna for supplying photographs of Coprinus, and for other help.

MYXOTHALLOPHYTA

MYXOBACTERIACEAE

Chondromyces aurantiacus (Berk. & Curt.) Thaxt. This species, or perhaps the var. *frutescens* Kriem., was determined from the description and figures of Kriemmeniuski (several papers in Acta Soc. Bot. Fennica, 1926-1930). It occurred on the mossy bark of *Populus* in a damp chamber, Univ.

crocatus Berk. & Curt. Fairly common on damp dung cultures and the decaying stipes of smut. Coprin., Univ. It is of a crocus-yellow color, and seems to fit the description of *C. crocatus*. Described and illustrated by Buller (82, vol. IV).

Myxococcus rubescens Thaxt. (cf. *ruber* Baur). Produces pink to orange fructifications with spores 1-2 μ in diameter. From soil, and rather common as a coprophilous species in culture. Keewatin and Univ.

ACRASIAE

Dictyostelium mucronoides Bref. Not uncommon on damp dung cultures in the laboratory. Univ. See Buller (82, vol. IV) for illustrations and discussion.

MYXOMYCETES

- Aecyria cinerea* (Hull) Pers. Occasional on *Populus* wood and bark, and on old leaves. Univ. det. *dentata* L. Wetst. Common on old *Populus*, etc., Univ. and eastern Man. One collection examined by Miss Lister to be very near *A. carnea* G. Lister.
- *ferruginea* Nees. Found once on old *Populus*, Univ.; det. Miss Lister.
- *incarnata* Pers. Throughout Manitoba on old wood.
- *incarnata* var. *fulgens* Lister. Winnipeg, det. Miss Lister.
- *insignis* Kalkb. & Cooke. Four collections, Univ. Determined in part by Miss Lister.
- *mutans* Bull. (rev.) On old wood. Victoria Beach, det. Miss Lister.
- *occidentalis* Maltz. Lister. *cf. Anobrya* Maltz. On *Populus*, etc. Univ. and collected by Chessman (106) at Winnipeg.
- *pantharcula* Leers. Bull. One collection on old wood. Univ., det. Miss Lister.
- Radthamus macrocarpa* (Pers.) Reut. Two somewhat doubtful specimens from Winnipeg.
- *magus* Berk. Two collections, one on *Populus*, Univ. very fed by Miss Lister.
- *panacea* (Fr.) Reut. On bark of *Populus*. Univ., det. G. W. Martin.
- *populina* Lister. On bark of ash in Pers. Clear Lake, det. Miss Lister, who writes "epiditium in part *Radtham* alike in part *Pyrenium* like. The smooth peridium with a green to the tendency to form short pale or dark websterian stalks, the dark websterian spores, slightly enlarged all agree with this species. Many spores show pattern of slender ridges and lines free from the close warring covering the remainder of the surface. I have received a similar *Phoma* form of this species from the late Professor Branden on spruce bark from Nevada, Roumania, that also was not perfectly developed."
- *utriculata* (Des.) Berk. On *Populus*, Victoria Beach, on wood, Univ., det. Miss Lister.
- Coniomyces fruticulosus* (Murr.) Maltz. Common at least in eastern Manitoba in damp water.
- Clenowichia reticulata* Al. & Scha. Reut. On *Populus*. Univ., det. Miss Lister. *Plumodiscus* smaller than usual. Another collection examined by Dr. Martin was noteworthy in being asporangiate and without the transverse carinate bars.
- Comatricha floccida* (Lester) Morgan. On old *Populus*. Univ., det. G. W. Martin.
- *irregularis* Rees. On old wood, common. coll. A. R. Skinner, det. Miss Lister.
- *typhoides* (Fr.) Reut. Fairly common on old wood and leaves. Univ. Winnipeg.
- Craterium leucocephalum* Pers. (Hym.) Rather common. Norway House to Univ.
- *minutum* (Leers) Fr. Victoria Beach, Univ.
- Criotharia dictydioidea* Cooke & Bull. On rotten Pers. eastern Man., det. G. W. Martin.
- *vulgaria* Schrad. Common near Schrad. in Manitoba and Martin. A specimen, evidently this species, was collected on a fallen conifer, eastern Man.
- Diachasma bulbosum* Berk. & Broome. Lister. This rare species on deciduous wood, Univ. Dr. Martin considers the identification to be probably correct although the sporangia are not perfect in nature. Previously recorded only from Ontario, Iowa, and southern Asia.
- Dianema Harveyi* Rees. One collection of this rare species on *Populus*. Univ. Stated by Miss Lister to be typical. Previously recorded only in Maine, Colorado, and Great Britain.
- Dictydiothecium plumbeum* (Nelson) Reut. Occasional on *Crataegus*, *Fraxinus*, etc. Univ.
- Dictydium cancellatum* (Maltz.) Maltz. Typical specimens on deciduous wood. Univ.
- Didyma Chondriodermis* de Bary & Reut. G. Lister. Specimens apparently this species, were collected on *Populus* bark in eastern Man.
- *officium* (Rees) Murg. probably variety *reticulatum* (Reut.) Maltz. On decayed leaves, Univ.
- *globosum* Pers. This seldom at rare species has been collected on old wood five times, Kenora, Winnipeg, Univ., det. W. T. Elliott and Miss Lister.
- *Thamniophloeum* (Bull.) Bonem. Found by Dr. Dearness on grass, etc. sent him from the University.
- *rudens* L. Murg. On wood. Lake of the Woods, Man., det. W. T. Elliott.
- *apocryptoides* Fr. Rather common on old leaves and wood, Univ.
- Didymium anethus* Murg. On old leaves of *Hemathus* in a damp chamber, Univ., coll. A. M. Brown, det. Miss Lister.
- *crustaceum* Fr. On decayed *Populus*, Univ. A rare species, verified by G. W. Martin.

- Didymiopsis difforme** (Pers.) Duby This species has been found only in cultures in damp chambers in the laboratory on dung of cow and horse, and on old leaves; Univ., det. G. W. Martin.
- malinospermum** (Pers.) Machr. On old *Populus*, *Picea*, *Viburnum*, etc.; Clear Lake, Univ., Victoria Beach.
- minus** Morg. One collection, Univ., verified by G. W. Martin.
- squamulosum** (Alb. & Schw.) Fr. Common in Man. on old deciduous wood, dead herbs, etc.; also at Indian Head, Sask.
- xanthopus** (Ditmar) Fr. On wood, etc., in cultures in the laboratory; Univ., det. Miss Lister.
- Enteridium Roseorum** Wingate. Occasionally found in western Manitoba, and north to Norway House.
- Fuligo intermedia** Machr. This western species was found on bark of *Populus* at Indian Head, Sask. by P. M. Simmonds. Spores mostly 10-15 μ in diameter.
- **septica** (L.) Weber. Common throughout the areas surveyed in Man. and Sask.
- **septica** var. **candida** Pers. Also common in Man.
- **septica** var. **rufa** Pers. Univ., Victoria Beach, probably common.
- **septica** var. **violacea** Pers. One collection, Victoria Beach.
- Hemitrichia clavata** (Pers.) Rost. Very common throughout Manitoba.
- **serpula** (Scop.) Rost. Victoria Beach; det. Miss Lister.
- **stipata** (Schw.) Machr. (*Acremonium*). Four collections on old wood of *Populus*, etc.; Univ., det. Miss Lister and Dr. Elliott.
- **vesparium** (Batsch) Machr. Common on old deciduous wood, at least along the Red River banks.
- Lamproderma columbinum** (Pers.) Rost. One collection at Victoria Beach.
- **scintillans** (Berk. & Broome) Morgan. On old leaves and fern fronds, Univ.
- **violaceum** (Fr.) Rost. Victoria Beach. This and the preceding species determined by Miss Lister.
- Leocarpus fragilis** (Dick.) Rost. Found occasionally in the coniferous areas along Lake Winnipeg.
- Liesia finiscola** Dearness & Bushy. Described in the preceding edition (71-52), type on horse dung in culture dish in the laboratory. Univ. First seen when the fresh dung had been a month in a damp chamber, and continued to appear for a month. Also on old cow dung placed in a moist chamber Nov. 8, 1931, sporangia found Jan. 21, 1932. These two collections are the only ones known of this species. The latter material, with larger spores (mostly 16-20 μ in diam.) was utilized by Dr. Martin to supplement the original description (see "The Myxomycetes," page 229). An inconspicuous but distinct species. A creeping plasmodium has not been seen, being apparently within the substratum, but upon appearing preparatory to forming sporangia it is pale pink. The spinule-shaped sporangia stand erect, but without any definite stalk.
- Lycogala epidendrum** (L.) Fr. Very common on old wood in Man. and Sask.
- **flavofuscum** Lévêq.; Rost. Collected at Winnipeg by Cheesman, not found by the writers.
- Mucilago spongiosa** (Lays) Morg. Common in Man. and Sask.
- Oligonema nitens** (Lab.) Rost. Occasional on Sask. etc.; Univ.
- Ophiostoma vermicularia** (Schw.) Mawson. On old leaves in a moist chamber, Univ., verified by G. W. Martin.
- Perichaena corticicola** (Batsch) Rost. Common on bark of *Populus*, Univ. and Victoria Beach. Det. Miss Lister and Dr. Elliott. Machr. and Martin report it as "apparently not common" in Iowa and elsewhere.
- **depressa** Lib. Rarely found, Univ. One collection was stated by Miss Lister to have "the convex sporangia of *P. corticicola* and the slender regular capillitium of *P. depressa*, and appears to be intermediate between these two closely allied species."
- **quadrata** Machr. Found by Dr. Dearness on wood of *Fraxinus* sent from the University grounds.
- Physarum oblongum** (Berk. & Curt.) Morg. One collection on an old fungus, Univ.
- Physarum auriscalpium** Cooke. On old *Populus*, etc. Univ., Berens River, det. Miss Lister, in part.

- Physarium bitectum** Lister On bark of *Populus* and on deciduous wood; Univ., det. G. W. Martin and W. T. Elliott.
- bivalve** Pers. (*P. gnusocum* (Pull.) Weism.) On moss and pine needles, Kenora, Winnipeg.
- cinerescens** (Batsch) Pers. Occasional on grass; Univ.
- compressum** Alb. & Schw. Old wood, and occasionally epiphytic. Four collections; Univ., det. in part by Miss Lister.
- **contextum** Pers. On *Populus*, *Alnus*, etc., across southern Manitoba.
- **didermoides** (Arhar) Rost. Reported from Winnipeg Beach by Cheesman, on moss near Lac du Bonnet, det. G. W. Martin.
- **flavicomum** Berk. Old wood, Univ., det. Miss Lister. Previously found near Ottawa, occasional in the U.S.A., not known in Europe.
- **fulvum** Wingate. One rather doubtful collection, Univ.
- **globuliferum** (Bul.) Pers. On *Populus*, etc., Univ.
- **leucophanum** Fr. Two collections; Univ. and Winnipeg.
- **notabile** Macebr. (*P. convolutum* (Peck) (Lister) On old *Populus*, etc., Univ., Winnipeg; not uncommon.
- **mutans** Pers. On debris, old *Populus*, etc., Univ., on decayed *Picea*, Berens River, det. G. W. Martin.
- **mutans** var. **robustum** Lister One collection, Univ.
- **oblatum** Macebr. (*P. Myceta* (Morg.) Tørrnu.) On old *Populus*, etc., Univ.; det. in part by Miss Lister.
- **rubiginosum** Fr. On old staves and moss, Berens River, Victoria Beach, det. W. T. Elliott and G. W. Martin. A striking species, reddish-brown to scarlet-orange.
- **sulphureum** Alb. & Schw. On old herbaceous stem, Univ., det. G. W. Martin. A rare species. The specimens were atypical in being more or less scabrous.
- **viride** (Rull.) Pers. On *Populus*, etc.; Univ., Victoria Beach.
- **viride** var. **incanum** Lister Two collections, Univ.
- Reticularia Lycoperdon** Bull. Occasional, Univ. and eastern Man.
- Stemonitis ferruginea** Ehrenh. (*S. oxyfera* (Bul.) Macebr.). Common at least in eastern Man.
- **ferruginea** var. **violacea** Myrl. This beautiful form, apparently previously known only in Europe and rare there, was collected on decaying leaves, Univ., July, det. Miss Lister.
- fusca** Both. Common across Man. and into Sask.
- fulvida** Wingate. One somewhat doubtful record, Univ.
- virginiana** Rex. On deciduous wood, Univ. and G. W. Martin. Macbride and Martin record this species in North America only from Virginia, Iowa, Oregon and California.
- Trichia contorta** (Urmsh.) Rost. Three collections, on *Populus*, etc., Univ.
- **deciquens** (Pers.) Macebr. Not uncommon, Univ., Winnipeg.
- **favosina** (Batsch) Pers. This fine species was collected near Kenora, det. Miss Lister.
- **floriformis** (Schw.) G. Lister. Victoria Beach, det. Miss Lister, who found the specimens to be typical.
- **inconspicua** Rost. On bark of *Populus*, Univ., det. G. W. Martin, two collections on hard droppings, Univ., det. J. Dearness.
- **persimilis** Karst. Two collections, Univ.
- **scabra** Rost. One collection, Lake of the Woods, Man.
- **varia** Pers. Not uncommon, Univ. to Victoria Beach.
- Tubifera Casparyi** (Rost.) Macebr. Only one collection, and that somewhat doubtful, on *Cornus*, Univ.
- **ferruginosa** (Batsch) Gmel. Two collections, Victoria Beach.

BACTERIA

BACTERIA PARASITIC UPON CULTIVATED PLANTS

- Bacillus amylovorus** (Burr.) Trev. On *Pyrus borealis* and other cultivated species of *Pyrus* in Man. and Sask., on *Prunus nigra* at Dauphin, Man., on *P. Massena* (cult.), Saskatoon, Sask. Full-blown of apples has been present for twenty years or more at Moodie, Man., having doubtless arrived with nursery stock. It is very injurious in a damp spring, such as 1935, on most of the types of apples that will grow in the Prairie Provinces. The disease first reached the Univ. of Man. orchard in 1926, but thorough pruning has held it in check,

it is now widespread in Man. Fire-blight was first reported from Sask. in 1932, when twig infections were noted at Saskatoon. It became prevalent in 1933 and 1934 and caused considerable damage in various parts of Sask. ("Fire-blight" is now used for *Bactulis*.)

- Bacillus carotovorus** I. R. Jones. Common in *Apocyn. graveolens*, *Brazillia oleracea* var. *botrytis* and *capitata* Tris. sp.; Winnipeg and vicinity.
- Lathyrus** Mann & Taub. Streak disease of *Lathyrus odoratus*, probably caused by *B. Lathyrus*, has caused some injury in Winnipeg.
- phytophthora** Appel. Black leg of *Solanum tuberosum* is common in Man. and Sask. It sometimes necessitates the rejection of potatoes for certification. *B. phytophthora* is near to, or possibly a form of, *B. carotovorus*.
- **Sorghi** Burr. On *Holcus infusus* and *Zea Mays* in Man., on the former host also at Indian Head, Sask. Conspicuous spots with purple borders are produced.
- **Trachasphilia** F. F. Smith. Wad of *Cucumis sativus* is occasionally seen in Man., but the causal agent has not been studied.
- Bacterium Agropyri** (O. Carr. Stev.) On *Agropyron sativum*, Pangman, Sask.
- **Ignominiosus** McCull. On leaves of *Gladiolus*, Winnipeg. This and the next species would be classified in *Pseudomonas* in the Migula system, but apparently the combinations have not been made.
- **marginatus** McCull. Occasional on *Gladiolus* sp. in Winnipeg.
- **michiganense** E. F. Smith. Sometimes injurious on *Lycopersicon esculentum*, Brandon, Winnipeg. Cultures from affected plants gave non-motile bacteria in yellow colonies.
- **striatiformis** (Ch. Elliott) (a *Pseudomonas*). Common on leaves of *Arenaria sativa* in Man., reported on *A. fulva* at Duck Lake, Sask.
- Frankiella** Allen (Woron. Mann & Tyson) (*Phanerochaete* (sic) Woron.) Common on roots of *Abies balsamea* in Man. Mann and Tyson state (Ann. Myc. 7: 242, 1909) that the organism found in the common gall on alder roots should be classified in the *Schizomyces*, and Ruberg (Jahrb. Wiss. Bot. 79: 472) names it *Actinomyces Allen*.
- Pseudomonas atrofaciens** McCull. Stem rot common on *Triticum aestivum* and *T. durum* in Man. and Sask. Produces basal gummosis in wheat heads, but found by W. A. F. Hagborg also on leaves and stems of wheat, not uncommonly in association with *P. translucens* var. *undulosa*, occasionally isolated from *Hordeum vulgare*.
- **campestris** (Pammel) E. F. Smith. Black rot of *C. ranifera* has been reported in Man., but no specimens have been studied.
- **carotae** Kendrick. On leaves of *Daucus carota*, Brandon. Collected, isolated and identified by Dr. Hagborg.
- **coronafaciens** (Ch. Elliott) Stev. On leaves of *Avena sativa* in Man. and Sask. Root rotting seems to be commoner than *P. coronafaciens* in Man.
- **Delphensis** (E. F. Smith) Stapp. Common and injurious on *Delphinium* spp. across Man. and at Indian Head, Sask.
- **glycinea** (Carp.) On leaves of *Glycine max*, Univ., Man., Indian Head and Scott, Sask.
- **lachrymans** (E. F. Smith & Bryan) Ferris. Sometimes injurious on leaves of *Cucumis anthur* in and near Winnipeg.
- **Phaseoli** F. F. Smith. Often injurious on *Phaseolus vulgaris* in Man. and Sask.
- **Pisi** Nackerdt. A bacterial spot on *Pisum sativum*, Univ., is presumed to be caused by *P. Pisi*.
- **radicicola** (Beyerlinck) Moore. The legume tubercle organism is, of course, present on native as well as cultivated Leguminosae.
- translucens** (L. R. Jones, Johnson & Reddy) Stapp. Widespread on leaves of *Hordeum vulgare* in Man. and Sask. First collection in 1920 at Univ., Man.
- **translucens** var. *Seuallsii* (Reddy, Godkin & Johnson) Stapp. On leaves of *Seuallsia cerisea*, Carman and Univ., Man.; Dyar at Indian Head and Horthorn, Sask.
- **translucens** var. *undulosa* (E. F. Smith Jones & Reddy) Stapp. Common and sometimes injurious on *Triticum aestivum* in Man., and at Saskatoon, Sask. Isolated once from *Hordeum vulgare* by W. A. F. Hagborg. Black chaff is injurious on certain varieties of wheat, and was particularly common in Man. in 1928, 1933 and 1935. It has been found on leaves, stems and heads. See Hagborg (1935) for details.
- **tumefaciens** (E. F. Smith & Towns.) Stev. Crown gall is occasionally found on *Prunus* sp. and *Rosa* sp.; Brandon and Univ.

EUMYCETES

PHYCOMYCETES

CHYTRIDIALES

Membranogaster Heteranthraeae Osterfeld & Peyerim. Recorded (Zeit. Bot. 23: 13, 1930) as a new genus and species on *Heteranthra dubia*, Lake of the Woods, Ontario (near the Manitoba boundary). Wareham (Mycologia 27: 262) points out that this fungus is probably a *Sorodiscus*. It has not been seen by the writer.

Olpidium radicle (de Wied.) Pascher (= *Uromyces radice* de Wied.). Found by Vanterpool (50) in roots of *Avena sativa*, *Hordeum vulgare*, *Secale cereale*, and *Triticum aestivum*, not a serious parasite. Apparently a normal inhabitant of Saskatchewan soils. Not yet found in Manitoba. Bartlett (Trans. Brit. Myc. Soc. 33: 221, calls this fungus *Olpidium radicle* de Wied. (= *O. Boreii* de Wied.).

Phyodermis maculata Wallr. (= *Phodochytrium maculata* Graft.) On *Alopecurus pratensis*; Unv. and Bouscain, probably fairly common. Rusting spores $30-40 \times 24-33 \mu$.

Menyanthes de Bary. On *Menyanthes trifoliata*, at Gmli, and common at Clear Lake. Spores $25-30 \mu$.

Synchytrium aciduloides (Peck) Lagerh. (*S. decipiens* Parl.) Abundant on *Amphicarpus monicus*, Unv. to Dauphin. Produces small galls on leaves and stems, with spores $15-24 \mu$ in diameter.

— *aurum* Schroet. On *Penstemon canadensis*, Brandon.

Urophycis plurinannulata (Berk. & Curt.) Felt. Rare on *Saxifraga maritima*, Winnipeg, 1918 col. W. P. Frazer, Birds Hill, 1935, col. I. L. Connors & G. R. Bishy. Spores c. $40-50 \mu$.

— *pulposa* (Wallr.) Schroet. On *Ceanothus glaucus* on alkaline soil, Brandon, Man., on *C. edulis*, Assiniboia, Sask. Rusting spores in both collections mostly $40-50 \mu$ in diameter, somewhat larger than given in Rabenhorst's *Hyptogasterflora*.

ANCYLISTALES

Lagena radicle Vanterpool and Ledingham (53). This new genus and species was described as a parasite of rootlets of *Triticum aestivum*, *T. durum*, *Hordeum vulgare*, *Secale cereale*, and *Zea Mays*, Regina and elsewhere in southern Sask. Not yet found in Manitoba, but recorded by Truett (Mycologia 25: 203) from Yorkland, Ont. The life history has been worked out except for the germination of the resting spores.

Lagenidium sp. On *Spiraea* sp., Saskatoon, Sask. Parasites of algae have also been observed in Manitoba by Professor Lowe, but these fungi have not yet been studied.

SAPROLEGNIALES

Saprolegnia ferox (Grev.) Thuret. On bait placed in water, Unv. Various *Saprolegniales* have been seen but not studied, in Manitoba, in Saskatchewan species of *Achlya* and *Aplanes* have also been found, but not fully determined.

parasitica Coker. Identified by P. H. Gregory from infected goldfish, Winnipeg.

PEROMYSPORALES

Albugo Blitt. (Rev.-Bey.) O. Kuntze. Often injurious to the weed *Amorcanthus retrofractus* in Man. and Sask., on *Menyanthes trifoliata*, Kelwood, Man., Saskatoon and Scott, Sask. (The generic name *Cytopogon* should perhaps be used instead of *Albugo*.)

candida (Pers. ex Lév.) O. Kuntze. On *Ranunculus acris*, *R. repens*, *Caprilla Bursa-pastoris*, *Lepidium apetalum* (*L. densiflorum*), *Sium*, *Sium*, *Sium* in both Sask. and Man., on *Arabis glabra*, *Castilleja nuxvomica*, *Androsace parviflora*, *Rododendron pubescens*, *Raphanistrum*, *Sium*, *Sium*, *Sium* in Man., on *Sium*, *Sium*, *Sium* and *Trigonotis* in Sask. A widespread and common fungus. Tognoli and Shibasaki, (list in Rev. Appl. Myc. 14: 1) report morphology and biologic forms of this fungus in Japan.

— *Portulacae* (DC.) O. Kuntze. On *Portulaca oleraceae* southern Man. and westward to Saskatoon, Sask.

— *Tragopogonis* (Pers.) S. F. Gray. On *Antennaria biennis* and *Cirsium arvense* in Man. and Sask., on *Antennaria pulchella* in Man., on *Cirsium* sp., *Isa ciliaris*, *Tragopogon dubius*, *T. portulacae*, and *Trigonotis* sp. in Sask., widely distributed.

Basidiophora Kellermanii (Ell. & Harkn.) G. W. Wilson. Common on *Isa ciliaris* in Man.

- Bremia Lactucae** Regl. On *Lactuca palechilla*, Swan River Man., Assiniboia and Lake Waskania, Sask.; on *L. sativa*, Indian Head, Sask.
- Peronospora nasturtialis** Syd. ex Gaum. Not uncommon on *Medicago sativa*, especially in damp seasons, Univ. and Brandon, Man. Indian Head, Sask. Causes some injury to alfalfa, but has not been found to be serious although it has been known in Manitoba since 1927.
- **alta** Fucker. On *Plantago major*, Minaki, Berens River, Battle, Brandon and Univ. Common in 1928, but found also in 1925 and 1935.
- **Artemisia-biantha** Güm. On *Artemisia biennis*, Scott. Sask. Known also in Minnesota and North Dakota.
- **Arthuri** Farr. On *Arctostaphylos* & *lancea* and *Vaccin.* Man., during the damp summer of 1928, also at Saskatoon, Sask., on *P. strigosus*, Grand Coulee, Sask., 1938.
- **Astragal** Syd. On *Astragalus canadensis*, Assiniboia; 1928.
- **borealis** Güm. On *Galium boreale*, Clear Lake, Man. Indian Head, Sask. The host may be considerably distorted. Güm. reports it from Ontario and Wisconsin.
- Beauveria** Güm. On *Berula arvensis*, Univ. Man. on *B. officinalis*, Univ. and Valley River, Man. Gray and Saskatoon, Sask.
- **Camelliae** Güm. On *Camellia macrocarpa*, Brandon, coll. W. P. Fraser. No previous North American record has been seen.
- **Corydalis** de Bary. On *Corydalis glauca* (*C. arvensis*), Kenora, Berens River, Norway House. Rather common in cool forests of eastern Manitoba, on *C. aurea*, Dauphin.
- **Echinoasporium** Sacc. On *Lepidium echinatum*, Saskatoon and Sutherland, Sask. Güm. records this fungus from Korea, Russia and Kansas only.
- **Erysini** Güm. On *Erysimum cheiranthoides*, in Manitoba and at Saskatoon, Sask.
- **Gei** Syd. ex Güm. On *Cruc. strictum*, Berens River, Clear Lake, on *C. triflorum*, Grand Coulee. Probably this species, although neither of these species of Güm. is recorded by Güm. The Clear Lake specimen bore conidia $18-19 \times 15-18 \mu$, which is about the usual size for this species.
- **grisea** Lager. On *Veronica perfoliata*, Berens River, 1933. Güm. was not certain as to the disposition of the *Peronospora* on this host.
- **Jaspinea** Magn. One collection on leaves of *Rhus Rhamnaceae*, Valley River, 1924.
- **Lepidii-sativi** Güm. Present in 1925 on *Lepidium sativum* ("broad-leaved cress" and "curled cress," cult.); Univ., also found at Saskatoon, Sask.
- **Lepidii-virginici** Güm. On *Lepidium apetalum*, Brandon, Man., common at Saskatoon, Sask.
- **marbonensis** Güm. On *Faris americana*, Dauphin, Univ. Güm. reports it from Iowa, Kansas and Colorado on this host.
- parasitica** (Pers.) Fr. Widely distributed in Man. and Sask. on *Capella Barni-pastoris*. A collection on *Synonymum album* is included here, since Güm. does not record this host, Saskatoon, Sask.
- **Potentillae** de Bary. On *Potentilla monspeliensis*, Wakaw and Lake Waskania, Sask.
- **Schachtii** Fucker. On *Briza vulgaris* var. *cicla* (*Briza chard*), Sutherland, Sask.
- **Schleideniana** W. G. Smith. On *Allium cepa*, Indian Head, Sask. 1927. This is the only record of downy mildew of onion in the Prairie Provinces.
- **Sophiae-plumatae** Güm. On *Sisymbrium irio*, Berens River, Brandon.
- **Spiraeae** Leco. Sometimes injurious to *Spiraea alba*, Univ., market gardens around Winnipeg and Brandon, Man.; also common in Sask.
- **Sulphurea** Güm. On *Artemisia* sp., Killarney, J. F. Marchack, 1935. The conidia measured about $30-36 \times 18-20 \mu$, and the fungus seems to fit *P. sulphurea*, which is known from North Dakota.
- **variabilis** Güm. Common and widespread on *Chenopodium album* in Man. and Sask.
- **Viciae-sativae** Güm. On *Vicia cracca* var. *angustifolia* (*V. sparganathoides*), Dana, Prud'homme and Saskatoon, Sask. Tufts violet, spores $26-30 \times 17-20 \mu$. Recorded on this host (as *V. lancea*) by Güm. from North Dakota and Kansas. It seems doubtful that this is really distinct from *P. marbonensis*.
- Phytophthora infestans** (Mont.) de Bary. On *Solanum tuberosum* in Man. No specimens of the late-blight of potato were seen in Man. by the writers until 1927, when affected tubers were sent in from Otterburne, Miami and Portage la Prairie. The succeeding year, 1928,

was damp, and considerable damage to potato vines occurred at the Univ., around Winnipeg, and in much adjacent territory. Tubers-rot was not serious in 1928. The fungus has not been found since.

Phytophthora parasitica Dastur. On *Gibba leucosa*, Ranton W. L. Gordon, 1928. One collection on v., and there is some uncertainty about the name. But the fungus seems to fit the widespread *P. parasitica* and Laumann (2, p. 174) is inclined to think that *Peronospora Gibba* Ell. & Ev. may belong to *Phytophthora parasitica*.

— **Thalictori** G. W. Wilson & J. J. Davis. On *Thalictrum discolor*, Linn., 1928, on *T. dasycarpum*, Clear Lake, 1935.

Plasmopara Ceramii Peck) Berl. & de Toni. On *C. acutum maculatum*, Berens River, 1933.

— **Habenaria** (Earl) Berl. & de Toni. On *Androsace pulchellipes*, *Habenaria frondosa*, *Helianthus annuus*, *H. maximiliani*, *H. petiolaris* and *H. multiflorus* variegatus, University to Brandon and Dauphin, Man., on *Helianthus annuus* and *H. sublimiflorus* in Sask. Rather common in damp seasons, sometimes injurious to *H. annuus*.

— **obducens** Schroet. On *Impatiens biflora*, Swan River and Berens River.

— **pygmaea** (Eng.) Schroet. On *Achillea ethusifolia*, found once in western Man., common in Sask.

— **ribicola** Schroet. On *Ribes oxycanthoides*, Minaki, Univ.

— **Viburni** Peck. On *Viburnum Opulus*, Univ. Girdle. Found only in 1927 and 1928.

— **viticola** (Berl. & Curt.) Berl. & de Toni. On cultivated *Vitis* sp., Univ. and Morden in 1927, causing considerable injury to the few grape vines present. No definite record of a previous occurrence, nor has the mildew been found since 1927, although 1928 was a favorable year for downy mildew, evidently the fungus was killed during the winter. It has not been found on the native *V. vulpina*.

Pseudoperonospora Humuli (Miyabe & Takah.) G. W. Wilson. On *Humulus Lupulus* in the woods, University and Minaki, Sept. 1928. No further collection of this interesting fungus has been made in Manitoba, perhaps because of drier conditions in recent years. Oospores are present in both collections.

Pythium arthenomanes Drechler var. *canadense* Vantepool and Truett (56, 76). Type of the variety isolated from *Trisetum aestivum* showing "becoming root rot" in Saskatchewan in 1929. Also parasitic on roots of *Senna senna*, *Hordeum vulgare*, *Sorgho cereale*, and *Zea Mays*. "Browning root rot" has also been found in western Manitoba, but the *Pythium* present has not been studied. This species is widely distributed in Sask. and has been isolated from *Agropyron cristatum*, *A. repens*, *L. temerum*, *Senna fatua*, *Bromus cernuus*, *Phalaris arundinacea*, *Phleum pratense* and *Setaria viridis* (Can. Plant Disease Survey Report for 1934). Bands and Dopp Jour. Agric. Res. 49 (1930) were inclined to include this variety as a geographic strain of *P. arthenomanes*. Vantepool (12) found that the fungus produced toxins injurious to cereals.

— **de Baryanum** Howe. Sometimes present as a cause of damping off of seedlings in Saskatchewan and Manitoba, including *Linum usitatissimum* in Sask. (Vantepool 53).

— **de Baryanum** var. *Polaragonum* H. Braun. Isolated from damaged *Polaragonum rosea* in a greenhouse, Winnipeg, det. T. C. Vantepool (Can. Plant Disease Survey Report for 1934, 83).

— **ultimum** Truett. In basal stem rot of cuttings of *Polaragonum rosea* in a greenhouse at Saskatoon, Sask. (T. C. Vantepool, Can. Plant Disease Survey Report for 1934, 84) and, *vide* Vantepool, more common than *P. de Baryanum* as a cause of damping off of seedlings in "Gals" in Man. and Sask.

— **volutum** Vantepool & Truett (56, 77). Type culture from rotted roots of *Trisetum aestivum*, Tudale, Sask. 1929. Also pathogenic to the roots of *Senna senna*, *Hordeum vulgare*, *Sorgho cereale*, and *Zea Mays*. Not found to be so widely distributed in Sask. as *P. arthenomanes* var. *canadense*. Not yet found in Manitoba. Lucht (Mededeel. Phytopath. Lab. Wilhe. C. ommelin-Scholten, Baarn, 13, 1, 23, 1934) found this species parasitizing grass in Holland. Vantepool (personal communication) found *P. volutum* to be capable of parasitizing various grasses in Sask.

Sclerospora graminicola (Sacc.) Schroet. On *Setaria viridis*, Roussillon, Man., common at Brandon, Man., in 1928, found at Indian Head and Oxbow Sask., and on *S. stricta* at Indian Head, Sask.

MUCORALES

Abidia glauca Hagem. Two isolations from soil, both of the + race.

— **orchidis** (Vuill.) Hagem. Isolated twenty times from Manitoba soil, from the surface to the C horizon; especially from forest soil.

— **spinoza** Leadw. Obtained 35 times from soil, especially in the A horizon of grass land, once from butter.

Chaetochytrium Brufeldii van Tiegh. & Le Mon. On culture of horse dung probably parasitic on *Mucor Mucosus*, Univ. Spores about 4μ .

Cunninghamella elegans Leadw. Four isolations from surface soil in Man., on wheat plants St. Aricuz, Sask. Species of *Cunninghamella* are sometimes used to test the phosphorus content of soil.

— **verticillata** Paine. One isolation from butter. Very similar to the preceding. Conidia oval, $10-14\mu$ long, spiny.

Endogone malleola Hark. Kanaue (Mycologia, 28: 60) places this in *Mobochela*. On the ground and on decaying leaves in the woods Univ., June-July. Sporangia $60-84 \times 42-60\mu$, spores $12-20\mu$. Determined by Dr. Leva B. Waiser, who has studied the development of this species (Mycologia, 15: 245).

Mortierella classon Bidera & Paxton. Seventy-one isolations from soil in Man., particularly from the lower horizon of meadow soil, from roots of *Triticum aestivum* in Sask. Spores $2.5-4 \times 3-6\mu$.

— **isabellina** Oudem. var. **russifolia** Dixon-Stewart. Forty isolations from soil and peat, usually in the upper horizons. Spores $2-2.5\mu$.

— **vinacea** Dixon-Stewart. Sixty isolations from soil, especially forest soil and peat, usually in the upper horizons. Spores $2-3\mu$. Described in Australia, then found in Man., and recently (Fitter, 130: 208) in Germany.

Mucor ?abundans Povah. Four isolations from soil.

— **circinellodes** van Tiegh. Two isolations, apparently this species, from butter.

— **dispersus** Hagem. Occasional in soil. Spores up to $15 \times 12\mu$.

— **hiemalis** Wehm. Rather common in forest soil.

— **Mucedo** (L. p.p.) Bref. A common coprophilous fungus, often covering the substratum in a few days.

— **racemosus** Fresen. Also a common coprophilous fungus, and rather frequent in soil, especially from wheat fields. Chlamydospores are abundant in the exhausted mycelium, spores up to $10 \times 8\mu$.

— **spinescens** Leadw. From flour and milk powder in a bakery which was having trouble with molds, Winnipeg. The columellae bear projections.

— **tylosatus** Hagem. One isolation from soil. Spores of two sizes.

— **ivarians** Povah. Obtained from soil.

Phycomyces Blakesleeanus Baerff (*P. varians* Agel). Rare on dung cultures, Univ.

Pilaira anomala (Lec.) Schrad. This fungus has never been found in Manitoba on dung of horse or cow, but a number of sporangiothecae were finally obtained on rat-dung collected near Beauport on Sept. 29, 1935 and placed in a damp chamber. Sporangiothecae were noted arising after two days; next day they had a yellow swelling at the apex, but were not mature until the fourth day. The spores were most $8-10 \times 4.5\mu$, a little narrow for *P. anomala*, but otherwise the fungus was as described by Grove (32: Vol. V., 217).

Moreauia Ling. Along with the preceding species there developed a *Pilaira* with spores $14-20 \times 10-12\mu$. This seems to be the first American record of *P. Moreaui*.

Pilobolus crystallinus Todt. Although earlier records of this species from Manitoba are doubtful, no abundant development appeared on fresh deer dung collected on Sept. 29, 1935 near Beauport and placed in a damp chamber. A few specimens appeared after four days, many after five days, and for a week or more thereafter. The trophocyst was short, as was the sporangiotheca. The spores were $6-8 \times 4\mu$, the discharged sporangia on glass from $150-300\mu$ in diameter. These total dimensions suggest *P. varians*, but that is a rather uncertain species. *Pilobolus* as discussed and illustrated in detail by Butler and Grove in *Researches on Fungi*, vol. VI.

— **Kleinii** van Tiegh. Common, particularly on horse dung, in Manitoba. (See 93.)

— **longipes** van Tiegh. Also common on horse dung in Man.

- Pileobolus oedipus* Mont. On remains of algae on mud beside the Red River, Winnipeg; C. W. Lowe. One collection only.
- *umbonatus* Buller. On horse dung, Winnipeg. This interesting new species is described by Buller (82, vol. VI). Spores $5-6 \times 3-3.8 \mu$, sporangium distinctly umbonate.
- Piptocephalia Freseniana* de Bary. Occasionally found parasitizing *Mucorales*, Univ., Winnipeg.
- Rhizopus elegans* Eidam. Rather common in Manitoba soil. Spores $5-8 \mu$.
- *nigricans* Ehrenb. ex Fr. Common as a laboratory "weed", in decaying fruits and vegetables, fairly common in the soil, sometimes isolated from cereal roots. Zygospores occasionally obtained in Man. and Sask. *Protoplasma* streaming, etc., discussed and illustrated by Buller (82, vol. V).
- *nodosus* Nanny. One isolation from butter. Swellings occur in the apertures of spores $5-9 \times 4-6 \mu$, striate. Probably the same as *R. archirus* Fisch.
- *Rhizopodiformis* (Cohn) Zopf (*R. Cohni* Berl. & de Toni). Isolated from the lung of a chicken, together with *Aspergillus fumigatus* G. P. Plates incubated at 37° C. Spores $4-8$ (10) $\times 3-6 \mu$, rhizoids present. A fungus, apparently this species, was isolated by Willard Allen from grasshoppers.
- Sporodinia grandis* Link. Collected on *Clavaria platylois*, *Penicillium involutus*, *Hypophyllum paderfense* and species of *Entoloma*, *Leclercium*, *Russula* and *Lactarius*, throughout Manitoba; on *Bostus* in Saskatchewan.
- Syncephalastrum racemosum* Cohn. Twelve isolations from soil from a wheat field, Univ.
- Syncephalia cordata* van Tiegh. & Le Mon. Following *Mucorales* on rabbit dung collected near Braunjaour and cultured three to four weeks in a damp chamber. Basal cell V-shaped, giving rise to two columns of spores, spores $6-8 \times 3-4 \mu$, rather small for *S. cordata*, but otherwise the fungus fits that species.
- *nodosa* van Tiegh. Parasitic on *Pileobolus*, Univ. Described and illustrated by Bader (82, vol. VI).
- Thamnidium elegans* Link. An occasional coprophilous fungus, Univ. Lateral branches of sporangiothecae dichotomously branched.
- *Fresenii* (van Tiegh. & Mon.) Schout. On an old wasp's nest, Univ. Lateral branches of conidiophore verticillately branched, spores $5-10 \times 4-6 \mu$.
- Zygerhynchus heterogamus* Vuill. Rare in Manitoba soil.
- *Maeileri* Asot. Amer., non V. ult. Isolated once from forest soil. Zygospores $30-55 \mu$, spores from sporangia $4-6 \times 2-3 \mu$.
- *Vuillamontii* Nanny. Occasional in soil.

ENTOMOPHTHORALES

- Empusa americana* Thaxter. Found twice on dead flies in the woods, Univ. Conidia $21-28 \times 13-15 \mu$, resting spores $35-54 \mu$.
- *Aphidis* Hoffm. Barely found on Aphididae, Univ.
- *Grylli* (Fres.) Nowak. Plays a part in decimating grasshoppers throughout the Prairie Provinces. Dr. R. F. Bird, Entomologist in charge of the Entomological Laboratory at Brandon, reports as follows: grasshoppers highly susceptible. *Carassida pallidula* (Scud.), *Melanoplus luteolatus* Say, and *Gonophemus cinctus* Thom. Species in which occasional individuals have been found affected. *Acrosternum cornutum* (L.), *Melanoplus ypsilon* Scud., *M. parvulus* Scud., *M. merriami* Sauss., *Spharagemon collaris* (Scud.), and *Trachyrhynchus kumii* (Thom.) This fungus becomes common when the grasshoppers are at their maximum prevalence, as in 1923 and 1934, and then may assume epidemic proportions when a damp summer comes upon the abundant grasshoppers (as in 1935). A cycle of about eleven years is expected for the rise and decline of these insects, and therefore of the fungus. Also found on *Griechia virginea*, Treeshank, Man.
- *Muscae* (Fr.) Cohn. Can be found each autumn on *Musca domestica* in Man. and Sask.
- *virescens* Thax. On dead cutworms, which had climbed up herbs before dying, Univ.
- Tarichium megaspermum* Cohn. Also on cutworms, and possibly only a stage of the preceding, Univ.

ASCOMYCETES

PLECTASCALES

- Arachniotus citrinus* Masses & Salm. On dung of rabbit, Dana, Sask., det. R. F. Cain.
- Eurotium herbariarum* (Wagg.) Link. the perfect stage of *Aspergillus herbariarum* of the *A. glaucus* group. The perithecia are commonly found on imperfectly dried herbarium specimens, stale bread and other organic material in Man. and Sask.
- *Tpucherrimum* Wint. On bird droppings, Rosser, Univ. Perithecia 100-200 μ , with membranous wall, aeci nearly spheroid, 12-16 μ , 8-spored, spores c. 3-8 \times 4 μ . Thom states that *E. pulcherrimum* is to be excluded from the *Eurotium* stage of *Aspergillus*.
- Cyrenaecium Reesii* Berk. On dung of old wasp's nest, and on soil, Univ. Perithecia orange, spores 3-4 \times 3-4 μ . This is probably an *Anschinus*.
- Monascus purpureus* West. On algae made from Zoo Mags, Brandon, Univ. A bright rose color is produced. The fungus was isolated by N. Jancz and studied in culture. No cases of poisoning of a stock by moldy oen algae have come to the writer's attention but see *Scopulariopsis brevicaulis*.
- Onygena corvina* A. b. & Schw. On feathers, Minaki, Univ. Povah (13) states that apparently the first published record of this fungus in North America occurs in *The Fungi of Manitoba*. He found it at Lake Revere, Mich.
- *equina* (W. Id., Pers. Occasionally found on old horns of animals in Man.
- Saccharomyces* spp. Yeasts are very common in butter or fruits, food materials, meat in storage, and in some flux in wounds on trees. They have not been studied.
- Thielavia terreola* (G. man & Abbott) E. m. m. Isolated from upper stem of *Tetradlea aculeata* at the Rust Laboratory by W. A. P. Hagberg. The aeci are evanescent, and the perithecia soon become filled with "loose" ascospores mostly 12-14 \times 7-8 μ (see Bull. Torrey Bot. Club. 57: 134).

EXOASCALES

- Taphrina Alni-incanana* (Kuhn) Magn. Causes distortion of female catkins of *Alnus incana*, Victoria Beach. The infection was too old for determination of microscopic characters, the fungus may be *T. Robinsoniana* Giesenh. If that be a distinct species.
- *caerulescens* (Mont & Desm.) Tul. Rather common on leaves of *Quercus macrocarpa* in Man., on *Q. densata* (cult.) at Indian Head, Sask.
- *communis* (Sadleir) Giesenhagen. The outermost "pocket" of *Prunus nigra* (cult.) in Man., and at Indian Head and Boettcher, Sask. is probably caused by *T. communis*. Native *P. americana* has not been found affected. The disease can be prevented by spraying.
- *deformans* (Berk.) Tul. This species is perhaps the cause of deformation of twigs and leaves of *Prunus pensilvanica* (cult.) Morden, and *P. pensilv.* \times *P. triflora* Univ.
- Institiella* (Sadleir) Johns. Causing "leaf curl" of branches of *Prunus pennsylvanica*, Victoria Beach, Man. Battleford Sask.
- Struthiopteridis* Nasheda. Causes brown discolorations on leaves of *Pteritis nuda*, Clear Lake.

HELVELLALES

- Cudonia circinans* (Pers.) Fr. In moss under conifers, Victoria Beach and Minaki, abundant at Clear Lake. Spores 40-50 \times 3-4 μ .
- Geoglossum tophioglossoides* (L.) Kar. One specimen in sandy woods of *Pinus banksiana*, eastern Man. Fruit body black, 40 mm. high, smooth, rather elastic, stalk 2 mm. wide, spores 54-68 \times 6-7 μ , set, or consistently 8-coiled when mature.
- Gyromitra saculenta* (Pers.) Fr. Victoria Beach and Lake of the Woods; late May. Sometimes abundant. No cases of poisoning from eating this fungus known in Man., but Dr. Dearness reports two fatal cases in Ontario. Beaver regards this fungus as only a gyoze form of *Helvella infusa*.
- Helvella crispata* (Scop.) Fr. Rather common in autumn, Univ. and Lake Winnipeg eastward in Man., Prince Albert National Park, Sask. Spores 18-20 \times 12 μ .
- *elastica* Bull. In woods, Clear Lake, Victoria Beach, Kenora, Aug.-Sept. 18-20 \times 11-12 μ .
- *infusa* Schaef. On the ground or on rotten wood, Clear Lake, Victoria Beach, Minaki, it has been found only in Aug. and Sept., whereas *Gyromitra saculenta* has been found only in spring, 20-22 \times 8-10 μ .

- Helvella miltra** L. (*H. lacunosa* Afz.) Rather common in woods across southern Man; July. Sept. 15-20 \times 10-12 μ .
- **sphaerosporea** Peck. This species, not commonly found elsewhere, has been seen several times at a place near Victoria Beach in late June, on old wood. Easily identified by its spherical spores, about 10 μ in diameter.
- Leotia lubrica** (Scop.) Pers. In coniferous woods, Kenora, Sept.-Oct.
- **lubrica** form Lloydii (Rehm) Durand. The green form has been collected at Minski, Sept.
- Mitrella irregularis** (Peck) Durand. Rather common, Clear Lake, Victoria Beach eastward, Aug.-Sept. 6-8 \times 4 μ .
- Morehella angusticeps** Peck. Univ. to Lake Winnipeg, April 14 (earliest collection) to the end of May. Pileus acute at apex, rather small, pits dark at margins, spores up to 28 μ long.
- **conica** Pers. In woods of Populus, etc. in Man and Sask. Perhaps only a form of *M. excelsa*. See Buller (82, vol. VI 3.4).
- **crassipes** (Ventenat) Pers. Univ. north and eastward, June. Spores c. 17-20 \times 11-13 μ .
- **delicatula** Fr. (new to Victoria Beach, Man, Humboldt, Sask. Small plants, spores 9-22 \times 10-18 μ . Late May and early June.
- **seculenta** (L.) Pers. Across southern Man, in woods in early June.
- Spathularia clavata** (Schseff.) Sacc. In bogs and low woods in coniferous areas, Norway House and eastern Man, Aug.-Sept. 50-60 \times 2-4 μ .
- Trichoglossum tetrasporum** Sinden & Fitzpatrick. In the edge of a bog, Rabbit Lake, Kenora, Sept. 25, 1932; coll. M. Timmon. Plants black, sessile, fertile portion short, an 4-spored, spores 11-14 \times 6-7 μ , 46-celled. Described from a collection in New York.
- Underwoodia columbiana** Peck. This interesting and striking fungus was recorded (Fung. of Man, p. 10) from three collections made in 1927 and 1928 in July and Aug. 1st. Several specimens were found on July 10-11, 1932 on the same deciduous wood, Univ., reaching a size of 9 \times 2 inches. The taste is mild. This species has been studied by Miss Nunn (Mycologia, 28: 336).
- Verpa bohemica** (Kromb.) Schroet. Common in deciduous woods at Univ. last half May 1927, 1932, found to be excellent when cooked, also at Victoria Beach, Edmonton, Alta., Saskatchewan, Sask. Acanth with two spores each 60 μ or more long. See Buller (82, vol. VI 324).
- **conica** (Müll.) Swartz. Occasional in late May, Univ., Victoria Beach and eastern Man.

PEZIZALES

1. Operculatus

- Aleuria aurantia** (Pers.) Tuck. On the ground, Univ., Jaggoff, Minski, Aug.-Oct. An orange cup-fungus with rough spores 20-24 \times 10 μ .
- Aleurina atrovinosa** (Locke) Seaver. Univ., Victoria Beach, July.
- Ascobolus carbonarius** Karst. On burnt places in woods, Univ., Winnipeg, Aug.-Sept. 20-25 \times 12-13 μ .
- **geophilus** Seaver. On damp soil, Univ., July. 20-25 \times 11-14 μ .
- **glaber** Pers. On horse dung, Univ., April. Apothecia $\frac{1}{2}$ mm. wide, spores varied in size in different apothecia. 17-20 \times 9-13 μ .
- **immersus** Pers. (new and Hamata. A common coprophilous fungus with large purple spores 55-65 \times 30-35 μ , sometimes found attached to herbage in the field.
- **stercorarius** (Rull.) Schroet. Also a common coprophilous fungus throughout Manitoba. Spores mostly 20-28 \times 9-14 μ . See Buller (82, vol. VII and Miss Dunning (120).
- **striatoporus** (Ell. & Desmone) Seaver. Type collected at London, Ont.; fairly common at the Univ. of Man. in a small slough as it dries up in spring or summer, on damp leaves of various kinds. Spores striate, purple, 15-20 \times 9-10 μ .
- **viridulans** Phil. & Plov. On rabbit pellets, Univ. Apothecia distinctly green when young or mature, $\frac{1}{2}$ mm. or less wide, exterior coarsely furfuraceous, spores 12-14 \times 7-8 μ , with distinct longitudinal ridges. Seaver records it only from New York and Europe.
- Ascophaea argentea** (Luray) Boud. On cow dung, Univ., Birds Hill. Apothecia silvery-white, very small, spores 10-12 \times 6-7 μ .
- **carneus** (Pers.) Boud. A common coprophilous fungus in Man. Spores 17-23 \times 10-13 μ , apothecia pale flesh-color to reddish.
- **gallinaceus** (Peck) Seaver. On partridge droppings, Berens River, Univ. Apothecia to 2 mm. wide, somewhat stalked, pale yellow-pinkish, more brownish at margin, hymenium

- concolorous, asci mostly $120 \times 18 \mu$, but widening to 16μ before spore discharge, spores $8-12 \times 5-8 \mu$. A similar small yellowish *Ascothamnia* has been collected on horse dung, with the asci mostly 4-spored.
- Ascothamnia glaucellus* Rthm. On rabbit dung. Univ. Apothecia about $\frac{1}{2}$ mm., milky-white, asci $c. 60 \times 13 \mu$, paraphyses 2μ at apex, spores mostly $8 \times 5 \mu$.
- *granulatus* (Bull.) Speg. Not uncommon on dung of horse and cow in Man. Spores $17-19 \times 9-10 \mu$, sometimes shorter.
- *lacteus* (Cooke & Pfall.) Sacc. Occasional on old dung Univ. Spores $8-13 \times 5-8 \mu$.
- *ochraceus* (Crouan) Boud. On dung of deer and horse; Beauport, Berens River, Clear Lake. Apothecia yellowish or brownish, about 1 mm. wide, spores $3-21 \times 8-10 \mu$.
- Bulgaria malastoma* (Sowerby) Seaver. Three collections on old wood, Victoria Beach, July-Aug.
- Diadema ancilla* Pers. | Sacc. On mossy wood, Victoria Beach Lac du Bonnet, June. Spores apiculate, $27-35 \times 11-14 \mu$.
- Durandiomyces Phillipsii* (Mance) Seaver. This "teahuge-head fungus" was found growing from rotted wood in an old mushroom cellar near the Univ., Oct. 1934. Pileus contorted, white with a trace of pinkish-yellow when fresh, brittle, spores rough $10-12 \times 5-8 \mu$.
- Geopyxis bronca* (Peck) Seaver. On much decayed wood, Victoria Beach, July. Yellow apothecia, spores $15-20 \times 12 \mu$, det. F. J. Seaver. Recorded previously only from New York and Europe.
- *cupularia* (L.) Sacc. On charcoal heaps in coniferous woods, Kenora, common at Clear Lake.
- Humerina aggregata* (Berk. & Broome) Seaver. Under Picea, Vivan, May, det. F. J. Seaver. Apothecia orange, spores $19-20 \times 9-10 \mu$.
- *araneosa* (Bull.) Seaver. On burnt sandy soil, Kenora, June. Spores $12-16 \times 8-9 \mu$.
- *leucoloma* (Hedw.) Seaver. Amongst mosses, Clear Lake, Minak, Aug-Sept. $20-22 \times 12-15 \mu$.
- *semi-immersa* (Harst.) Seaver. On damp soil in ravines, Univ., July-Aug., det. F. J. Seaver. Cups pale tan, 3-7 mm. wide, spores $14-16 \times 10 \mu$.
- *testacea* (Moug.) Seaver. On old roots and stems of Medicago, Univ. Spores $15-19 \times 10-11 \mu$.
- *trachyderma* (Ed. & Fv.) Seaver. On decayed Populus, Univ., May, det. F. J. Seaver. Cups viscidous-brown, paraphyses, 8-10 μ wide at tips, spores $20-24 \times 10-12 \mu$.
- Lamprospora Constellation* (Berk. & Broome) Seaver. These bright red apothecia are fairly common on damp soil in woods, Victoria Beach, Univ., June-Aug. Spores $12-18 \mu$ in diameter.
- Neotirubra* (Cooke) Lagarde. On sandy soil, Victoria Beach. Spores $12-15 \mu$.
- *viscosinensis* Seaver. On burnt manure in a bog near Rennie, Aug. Apothecia orange on drying, spores small, 7-8 μ .
- Lasiohelus equinus* (MueL.) Karst. Occasional on dung of horse, deer, etc., Clear Lake, Univ. $20-24 \times 12-13 \mu$.
- Malastiza Charteri* (W. G. Smith) Boud. (W. G. Smith's Boud.). Common on sawdust in an emptied ice-house in autumn, Univ. Bright red cups with hairs on exterior, spores up to $22 \times 11 \mu$. See Buller (82, vol. VI).
- Patella abundans* (Karst.) Seaver. On burnt places in red woods, Clear Lake, Sept. Cups whitish with pale brown pointed hairs, spores $c. 16 \times 8 \mu$.
- *albida* (Schaeff.) Seaver (*Lachnum leucophaea* (Weber) Gell.). Common on the ground and old wood, Univ. to Berens River and eastward, July-Sept.
- *albocincta* (Berk. & Curt.) Seaver. Amongst moss, Kenora. Spores rough, $c. 24 \times 13 \mu$.
- *albopadicea* (Grev.) Seaver. On fallen leaves of deciduous trees, Univ., Sept. Apothecia 3-5 mm., whitish clothed with brownish hairs, spores smooth $14-16 \times 9-10 \mu$.
- *coprinaria* (Cooke) Seaver. Not uncommon on old cow dung; Univ., Victoria Beach. Apothecia peach-yellow, clothed with long hairs, spores $14-19 \times 7-10 \mu$.
- *funetaria* Seaver. On cow dung in woods, Birds Hill, July 8, 1935, I. L. Coopers and G. R. Burby. Apothecia reddish with hairs up to 1 mm. long, forked at base, paraphyses to 8 μ wide at apex, spores $18-21 \times 10-12 \mu$, distinctly rough. Evidently *P. funetaria*, previously known only from the type locality in New York State.
- *melaleuca* (Alb. & Schw.) Seaver. Common along the Red River on burnt soil, June to Oct. $15-20 \times 8-10 \mu$.

- Patella acetosa** (Kew) Seaver. On decayed wood of *Populus*, Univ., July, det. F. J. Seaver.
- **scutellata** (L.) Morg. (*Laetia scutellata* (L.) Gill) Common on old wood and debris across Man., to Norway House, and to Saskatoon and Lake Waskreiu, Sask. See Buller (82, vol. VI).
- **stercorea** (Pers.) Weber. Common on cow dung across Man., rarely seen on horse dung, found on moose dung at Clear Lake with smaller spores, $14-17 \times 7-10 \mu$.
- **thieleholoides** (Afb. & Schw.) Seaver. Common in an ice-house after being emptied on sawdust and debris, Univ. Apothecia yellow; spores $14-17 \times 8-9 \mu$ up to $23 \times 10 \mu$ in one collection. See Buller (82, vol. VI, as *Chelystoma rimosum*).
- Peziza acutabulum** (L.) O. Kuntze. Occasional on ground in frondose woods, Univ.; July $16-20 \times 12-14 \mu$.
- **corium** (Weber.) Seaver. On the ground, Victoria Beach, Man.; Saskatoon, Sask. Cups blackish, spores $15-19 \times 9-11 \mu$.
- **hispida** (Schaff.) Seaver. On the ground or on rotted wood of *Betula*, etc.; Victoria Beach, Bertus River, July-Aug. $20-25 \times 10-13 \mu$.
- **macropus** (Clemente) Seaver. In frondose woods, Univ., June. Stem to 5×1 cm., lacunose, apothecia to 6 cm. wide, spores $\pm 20 \times 13 \mu$.
- **Taubclavipes** (Phal. & Ed.) Seaver. In deep mixed woods, Victoria Beach, Aug. Stem 1 cm. long; cup small, spores $16-22 \times 10-12 \mu$.
- **solcata** (Pers.) Kuntze. Occasional on the ground in woods, Buda Hill, Univ., Victoria Beach June-July $16-20 \times 11-14 \mu$.
- Perretia flammea** (Afb. & Schw.) Bond (*Lochnella flammea* Fr.). On old wood, Victoria Beach, June. Apothecia lemon-yellow inside, clothed with brick-red hairs outside, warts $\pm 100 \times 10-12 \mu$, paraphyses 68iform, spores $1.8-2.8 \times 3\frac{1}{2}-4 \mu$, becoming septate.
- Peziza badia** Pers. Common in woods, Univ. at Victoria Beach and eastward June-Sept. $16-20 \times 8-10 \mu$. See Buller (82, vol. VI 304).
- **domiciliana** Cooke. In a cellar, Univ. $15-16 \times 9-10 \mu$.
- **firmanti** (Fueckl.) Seaver. On old cow dung, Univ.; June. Apothecia about 1 cm. wide, spores $12-14 \times 6-7 \mu$.
- **pustulata** (Heide.) Pers. On burned areas, Victoria Beach, Winnipeg, Aug.-Sept. Spores variable, rough, $12-18 \times 6-10 \mu$.
- **repanda** Pers. Common on rotted logs, sawdust, etc.; Univ., Victoria Beach eastward. Spores mostly $14-16 \times 8-10 \mu$, sometimes longer.
- **sylvatica** (Bond.) Sacc. & Trott. Univ. Victoria Beach, west to Clear Lake, Man., and Lake Waskreiu, Sask.
- **vesiculosa** Bull. Common on dung, mushroom beds, or rich soil, Kenora to Norway House and Univ., June-Aug. Discussed and illustrated by Buller (82, vol. I, referred to as *P. repanda*, also vol. VI).
- **violacea** Pers. On charcoal, etc., Clear Lake, Univ.; June-Sept.
- Plectania coccinea** (Sacc.) Fueckl. The only record of the Scarlet-cup as a specimen sent from near Neche, North Dakota, on Mar. 27, 1927. Since it apparently was collected only about a half mile from the Manitoba boundary, it may reach southern Man. $28-38 \times 10-14 \mu$.
- **hiemalis** (Kees & Bertol.) Seaver (*Sarcocypis profecto* (Fr.) Sacc.) Not uncommon in deciduous or mixed woods across southern Manitoba, late April to early June. Discussed and illustrated by Buller (82, vol. VI). Spores $40-46 \times 16-22 \mu$.
- Pseudoplectania fulgens** (Pers.) Fueckl. Rather common on moss and rotted wood in coniferous woods, Victoria Beach, late May or early June. Apothecia reddish peach-color, up to 4 cm. wide, spores spherical, $6-9 \mu$.
- **nigrella** (Pers.) Fueckl. One collection on old mossy wood, Victoria Beach, late May. Cups blackish outside, bay-brown inside. $8-17$ mm. wide, spores $10-12 \mu$.
- **vogesiaca** (Pers.) Seaver. Three collections on decayed wood, Victoria Beach, May or early June. Cups blackish, to 25 mm. wide, stipitate, spores $10-12 \mu$. It is noteworthy that all known North American species of *Pseudoplectania* may be collected at Victoria Beach in May. Other coniferous areas have not been visited so early.
- Pellepezia nummularia** Berk. On wet leaves; Univ. Apothecia brown, adhering to substratum, spores smooth, $20-32 \times 11-12 \mu$.

Pyrenopeziza canina Dearness & Busby (71: 60). On dung of dog, Norway House, 1928. No more of this fungus has been found, and nothing can be added to the previous report. Spores $11\text{--}13\text{ }\mu\text{m} \times 6\text{--}7\text{ }\mu\text{m}$.

— *omphalodes* (Bolt.) Fockel (*P. conflans* (Pers.) Tul.) Common in damp weather on charcoal beds and burned soil, rather troublesome in greenhouses on pots of sterilized soil, Man and Sask. Discussed and illustrated by Buller (82, vol. V, VI).

Rhizina infecta (Cobaeff.) Karst. Rare, under Pinus in autumn, Victoria Beach, Kenora. See Buller (82, vol. VI: 340).

Rhyarobius crustaceus (Fockel) Rehm. Occasional on rabbit dung in damp chambers, L. n. v. Asci $120\text{--}150 \times 22\text{--}30\text{ }\mu\text{m}$, spores $8\text{--}10 \times 5\text{--}6\text{ }\mu\text{m}$. Many spores (apparently about 128) in an ascus, but others as the fungus agrees with *R. crustaceus*, which is recorded as having about 64 spores per ascus. Only about a half dozen asci in each mature apothecium.

— *monacaeus* Mouton. On dung of goat and rabbit, L. n. v. Apothecium about $150\text{ }\mu\text{m}$ wide, pale brownish glabrous, no ascus present. c. $120 \times 50\text{ }\mu\text{m}$, containing more than a hundred spores, spores $5\text{--}6 \times 3\text{--}4\text{ }\mu\text{m}$. Perhaps a better name is *Thalobolus monacaeus* (Mouton) Boud.

— *polyaporus* (Karst.) Bacc. On old dung in damp chamber, L. n. v. Apothecia $70\text{--}90\text{ }\mu\text{m}$ wide, yellow-hyaline, with 3 to 6 asci, asci rather small, about $36 \times 18\text{ }\mu\text{m}$; spores sub-spherical, about $3\text{ }\mu\text{m}$ in diameter, many in each ascus. Probably near *R. polyaporus* but all spores rather small.

— *axidolomporus* (Crouan) Phill. On dung of rabbit, Prud'homme, Sask., det. R. F. Cain. *Saccobolus depauperatus* (Heck & Broome) Phill. On dung of horse and deer, Berens River, Clear Lake, L. n. v. The discharged purple spores are $12\text{--}14 \times 6\text{ }\mu\text{m}$, and cling together in a mass $30\text{--}35 \times 10\text{--}12\text{ }\mu\text{m}$.

— *globuliferellus* Seaver. On rabbit dung, Prud'homme, Sask., det. R. F. Cain. Seaver (14) records it only from New York City.

Scodellina grandis (Pers.) Seaver. On damp soil in mixed woods, Victoria Beach, Sept. Spores slightly rough, $15\text{--}18 \times 8\text{--}10\text{ }\mu\text{m}$.

— *laporina* Batsch & F. Gray. Common on soil in woods, Clear Lake, L. n. v., Victoria Beach eastward. Spores vary somewhat in size in different collections, range $10\text{--}15 \times 6\text{--}9\text{ }\mu\text{m}$. One collection (perhaps from near Rebo) had spores $8\text{--}10 \times 6\text{ }\mu\text{m}$.

Seputaria taurentia (Curtis) Rehm. In mosses on a plantation of conifers near Morris, Man., July. Apothecia sunken in soil, c. 2 cm. wide, externally densely hairy, hymenium pale yellow, spores $18\text{--}23 \times 12\text{--}13\text{ }\mu\text{m}$. A similar or identical species found at Ingolf.

Thalobolus Zukalsii Heywood. On dung of deer, Clear Lake, Man., det. R. F. Cain.

Urnula craterium (Schw.) Fr. Rather common in May and early June in deciduous woods, L. n. v. to Victoria Beach and eastward. Spores $24\text{--}40 \times 1\text{--}1.5\text{ }\mu\text{m}$. See Buller (82, vol. VI: 308).

2. Inopercuatae

Archnopeziza aurelia (Pers.) Fockel. On old wood of *Betula alba* var. *papyrifera*, Victoria Beach, May. Apothecia to 2 mm. wide, golden-yellow with a fringe of orange hairs, asci c. $100 \times 10\text{ }\mu\text{m}$, spores straight or slightly, $20\text{--}24 \times 4\text{ }\mu\text{m}$, becoming one-septate.

— *delicatula* Fockel. On deciduous wood, L. n. v., July. Cups small, hyaline becoming pale yellowish, with a fringe of delicate hairs, spores $32\text{--}44 \times 3\text{--}4\text{ }\mu\text{m}$.

Asocalyx Abietis Nazarov. On twigs of *Abies balsamea*, Victoria Beach, the conical stage *Botrydium pinicola* at Berens River, verified by H. S. Jackson. See Mycologia, 28: 451.

Calicium polyopseum Nyl. On *Polygala perfoliata* and *Diurhale confusoides*, Norway House and L. n. v. Certain species of *Calicium* are paired in the Lichens, but *C. polyopseum* is a fungus, according to Fink.

— *pusillum* (Achar.) Floerke. On coniferous wood, Norway House, on stump of *Fraxinus pennsylvanica* and fallen fruits of *Quercus macrocarpa*, L. n. v. Spores brown, $8\text{--}10 \times 2\text{--}4\text{ }\mu\text{m}$, two-celled.

Callisia fusarioides (Berk.) Fr. On old stems of *Laportea canadensis*, Selkirk, June. Apothecia irregular, bright orange-red, spores two-celled, $10\text{--}14 \times 4\text{ }\mu\text{m}$. The conical stage *Cylindrocapsa Urinosa* also was present.

Cetinella nigro-olivacea (Curry) Boud. On old wood of *Populus*, L. n. v. on old cutler, Victoria Beach. Apothecia 3–10 mm., dark green outside, olive black inside, spores greenish, $8\text{--}10 \times 3\text{--}4\text{ }\mu\text{m}$.

- Canangium furfuraceum** (Roth) de Not. Very common on dead branches of *Corvix*, Univ and probably elsewhere. The apothecia have been found open in early July. Spores about $8 \times 2\frac{1}{2}\mu$.
- **populaceum** (Pers.) Rehm. Common on wood and bark of dead *Populus*, rare on branches of *Fraxinus pennsylvanica*, Manitoba, and Prince Albert, Sask. $10-16 \times 3-4\mu$.
- **populaceum** var. **prunicola** Rehm (as in Breckle, *Fungi Dakotenses*, 1896). On *Prunus nigrescens*, Univ.
- Chlorosplenium aeruginascens** (Nyl.) Karst. On *Fraxinus pennsylvanica*, *Populus*, etc., across southern Manitoba. Spores small, $6-8 \times 2\mu$. More commonly collected than the next, differs only in spore size, no intergrading sizes have been found. Seaver (*Mycologa*, 28: 391), however, places the two species together under his new genus *Chlorosporia*.
- **struginosum** (Oed.) de Not. On *Salix* etc., Univ northward and eastward. Spores $10-13 \times 2-3\mu$.
- versiforme** (Pers.) de Not. On coniferous wood, Victoria Beach. Cups green to $2\frac{1}{2}$ cm. broad, spores $12-15 \times 3-4\mu$.
- Ciboria armentacea** (Bolb.) Fuckel or a variety. On male catkins of *Abies balsamea*, roadside through muskeg near Vivian, April 25, 1934, H. H. Whetzel and G. R. Basy. Perhaps this species on fallen *Salix* catkins, Ouel.
- caucus** (Rehm.) or Pers. Fuckel. On fallen male catkins of *Populus tremuloides*, Univ., Victoria Beach, late April or early May, sometimes before the last snow has melted in the woods. The catkins of the previous year produce stalked apothecia, spores $9-12 \times 4-6\mu$. First found in Mar. May 1, 1932 by T. H. Harrison of Australia, then in late April 1933, and collected with H. H. Whetzel in the spring of 1934, common for a few days only, each spring.
- **luteovirescens** (Rob.) Sacc. On more or less buried twigs of succulent woody plants, Univ., July. Apothecia greenish-yellow, 1-5 mm. wide, stem 1-5 cm. $\times 1-4$ mm. dark below, smooth above, asci c. 100 $\times 10\mu$, spores hyaline, c. $12-13 \times 3-3\frac{1}{2}\mu$.
- **rufofusca** (Weber.) Sacc. On carps of old cones of *Picea* sp., Indian Bay, S. E. Man. Apothecia solitary, long stalked, spores $5\frac{1}{2}-6 \times 2\frac{1}{2}-3\frac{1}{2}\mu$.
- sp. On fallen male catkins of *Betula alba* var. *papyrifera*, Victoria Beach and Indian Bay. Common in early May on v. Illustrated, with notes, by Butler (82, vol. 4: 141). Prof. Whetzel plans to name this fungus.
- Coryne sarcoides** (Jatrz.) Tul. On old wood of *Populus*, etc., Univ. eastward. Apothecia purple, spores $15-22 \times 4-6\mu$, becoming septate.
- sarcoides** var. **urnalis** (Nyl.) Karst. On *Populus*, etc., Univ. Kenora. Like the preceding except that the spores are larger, $22-30 \times 5-6\mu$.
- Daesysspha Agassizii** (Berk. & Curt.) Sacc. Common on branches of *Abies balsamea*, Victoria Beach eastward. Hymenium orange, spores c. $5-7 \times 2\mu$.
- **arida** (Phall.) Sacc. On fallen branches of *Picea*, Berens River. Cups dark brown setose, spores oval, $5-7 \times 3-4\mu$.
- **Carstiana** (Rehm.) Sacc. On old fronds of *Pteris nodulosa*, Univ.; May-June. Apothecia small, white, spores $9 \times 2\mu$ or larger.
- **foetida** (Pers.) Fuckel. On twigs of *Quercus macrocarpa*, Univ. Apothecia pale brick-red, but immature.
- **Tetryna** (Karst.) Sacc. On old deciduous wood, Matlock. Cups pale yellow, spores $6-8 \times 1\frac{1}{2}-2\mu$.
- **nivea** (Hedw.) Sacc. On deciduous wood, Univ., det. F. J. Seaver.
- **Pinii** Breuh. On twigs of *Pinus Banksiana*, Victoria Beach. Spores $15-19 \times 4-6\mu$.
- **pygmaea** (Fr.) Sacc. On exposed roots of frondose tree or shrub, Victoria Beach.
- Isoporolechia** (Oud.) Rehm. On decaying stems of *Helianthus annuus*, Univ. Cups very small, white, spores $7-10 \times 1\frac{1}{2}\mu$.
- **sulfurea** (Pers.) On old herbaceous stems of *Asclep.* etc., Univ., April-May. Apothecia grayish, with hairy, lemon-yellow margin, perithecia pointed, spores $8-14 \times 2\mu$. Det. Seaver. This is (presumably) *Peziza sulfurea* Pers.; a *Daesysspha* combination was not found.
- Dermatea** ?**Cerasi** (Pers.) de Not. On old wood, probably of *Prunus*, Kenora. See *Micropera drapacurum*.

- Dermatea** Rehm (Lib.) Rehm. On *Cornus stolonifera*, Univ., Sept. Apothecia brown; spores $29-38 \times 9-12 \mu$, larger than described for this species.
- Desmazierella echinata** Dearness. On old wood of *Populus*, Univ.
- Fabrea Ranunculi** Fr., Karst. (*Pseudopeziza singularis* (Peck) J. J. Davis) On *Ranunculus peninsularis*, eastern Man. Ascospores $14.20 \times 4 \mu$, becoming septate into one small cell and one large.
- Geopyxis nebulosa** (Cooke) Sacc. (a species of *Gibberia*) On old deciduous wood, Matlock. Cups whitish, 5-15 mm. wide, stalked, spores $23-34 \times 6 \mu$.
- Gedronia urceolus** (All. & Schw.) Karst. On dead twigs of *Ribes* sp., Univ. June. Apothecia urceolate, olive green then blackish, spores $60-70 \times 2-3 \mu$. (See *Mycologia*, 26: 266, 1934.)
- Helotium falbidum** (Rob.) Pat. On fallen, more or less skeletonized leaves of *Ulmus americana* and *Quercus macrocarpa*, Univ. Apothecia small, pure white, stalked, spores $c. 15 \times 4 \mu$.
- **ovoides** (Batsch) Fockel (*Phloeus ovoides* Quél.). On fallen maple catkins of *Salix* sp., Univ., Vivian, April, det. H. H. Whetzel. Possibly this species found also on fallen catkins of *Populus*.
- **nitens** (Hedw.) Fr. Common on old *Betula*, *Populus*, etc., throughout Manitoba.
- **epiphyllum** (Pers.) Fr. On fallen leaves of *Populus*, etc., Muzaki Univ. Apothecia tan-colored, to 3 mm. wide; spores $18-20 \times 4-5 \mu$.
- **frustigerum** (Bull.) Karst. On fallen acorns of *Quercus macrocarpa*, Univ. Small white apothecia on long stalks; spores $14-15 \times 4 \mu$.
- **Phyllophelium** (Desm.) Karst. On fallen leaves, Univ. Spores $c. 10 \times 4 \mu$.
- **conspicuum** (Hll. in Cooke) or near. On fallen leaves of *Ulmus americana*, Univ.
- **salicellum** Fr. On twigs of *Salix*, Univ. Apothecia yellowish, about 1 mm. wide, with a short stalk, spores spindle-shaped, $20-24 \times 6 \mu$, with two guttulae.
- **sulphuratum** Phell. On fallen needles of *Picea*, Birds H.J., Clear Lake. Vivian. Apothecia yellow, stalked, 1-4 mm. wide, spores $10-12 \times 4-6 \mu$, this and the next det. with some doubt by F. J. Seaver.
- **virgultorum** (Vahl) Karst. On old *Populus*, Keewatin.
- Hysteropeziza elliptica** (Fr.) Rehm. On wood of *Salix*, Univ. Spores $20-25 \times 7-8 \mu$, brown, 3-septate, this one is that of Fockel, not Rehm. (see Rabenhorst *Kryptogamiflora*.)
- **Prostii** (Duby) Rehm. On bark and wood of *Ulmus* and other deciduous trees. Birds H.J., Univ. Spores $12-16 \times 5-6 \mu$, light brown, 3-septate.
- Karschia deformata** Peck. On dead twigs of *Juniperus horizontalis*, Beaver Creek. Sask.
- **liguysa** (Fr.) Sacc. Common on dead *Arctostaphylos uva-ursi* along the Red River. Apothecia blackish; spores $10-14 \times 2-3 \mu$. Identification tentative.
- Lachnella corticalis** (Pers.) Fr. Common across Manitoba on bark of *Populus*. Spores $19-30 \times 3-4 \mu$.
- **hypopurpurea** (Bull.) Karst. On deciduous wood, Stony Mountain. Spores $10-12 \times 4 \mu$, hyaline, 1-septate.
- Lachnum bicolor** (Bull.) Karst. On twigs of *Ribes*, bark of *Betula*, etc., Univ. and Victoria Beach. Spores $10 \times 14-2 \mu$.
- **virgineum** (Hatch) Karst. On fallen bud scales of *Populus balsamifera*, Univ. Cups small, pure white. Common in early May.
- Lecographa Nranconia** Rehm. On old wood of *Betula*, G. Ml. Apothecia 0.2-0.5 mm. wide, spores $10-12 \times 4 \mu$, brown, 3-septate.
- Mollisia arundinacea** (DC.) Phell. On old stems of *Phragmites communis*, Lake Dauphin, July. Apothecia pale, spores $8-.3 \times 2-2.4 \mu$. Probably this species also on old grass, Univ.
- **Introcineras** (Cooke) Phell. On old stems of *Cirsium arvense* and *Mentha* sp., Univ. $8-10 \times 2 \mu$.
- **caesia** (Fockel) Sacc. Rather common on old stems of *Symphoricarpos*, Univ. Cups gray; spores $9-12 \times 2-3 \mu$. Det. J. F. Breckle, who has studied this species in North Dakota (see *Fungi Dakotenses*, 533).
- chionea** Mance & Crossl. On old deciduous wood, Univ., det. F. J. Seaver as var. *macrospora*.
- **clavata** (Batsch) Karst. Very common on old wood of *Acer*, *Fraxinus*, *Populus*, *Salix*, *Ulmus americana*, etc., Univ. eastward. Apothecia steel-blue to tan or whitish, spores $8-12 \times 2-3 \mu$.

- Mollisia Dehnii** (Rabenh.) Karst. Not uncommon on *Potentilla monspeliensis*, Berens River south-westward in Man. and at Moots, Sask., one collection on *P. bipinnatifida*, Carberry, Man. The dark apothecia arise abundantly on affected stems, petioles, seed-vessels, etc.; evidently from a systemic mycelium, the plants are stunted, but withstand the attack remarkably well. Spores $11-16 \times c. 3 \mu$.
- **melaleuca** (Fr.) Sacc. On decayed wood, Kenora, det. F. J. Seaver.
- **trufula** Sacc. On old grass, Brandon. Apothecia minute brownish, spores $c. 6 \times 2 \mu$.
- Orhelia chrysocoma** (Bull.) Sacc. On dead *Vitis americana*, Univ., det. F. J. Seaver.
- **tocecinella** (Sommerf.) Karst. On old deciduous wood, Univ., Nov. Apothecia watery pink, spores $5-7 \times 3-3\frac{1}{2} \mu$.
- **xanthostigma** Fr. On decaying *Populus*, Univ. Apothecia small, lemon-yellow, asci $c. 35 \times 6 \mu$, spores $5-6 \times 1-1\frac{1}{2} \mu$. Species of *Orhelia* are not uncommon in Manitoba, but it is not yet possible to place them definitely.
- Patellaria strata** (Hedw.) Fr. Rather common on old *Prunus pennsylvanica*, *Populus*, and other deciduous wood (sometimes on worked wood, e.g. an old spade-handle), Univ. Cups olive-black, spores $40-62 \times 8-11 \mu$. 8-celled or more, each cell with an oil drop.
- **clavisporea** Berk. & Broome. On old *Cornus stolonifera*, Univ. Spores $30-40 \times 7 \mu$, otherwise resembling *P. atrata*.
- Patellaria sanguinea** (Pers.) Rehm. On old wood of *Quercus macrocarpa*, etc., Univ., Victoria Beach. Apothecia red with greenish epithecium, spores $8-10 \times 3 \mu$.
- Patinella punctiformis** Rehm. On bark of *Pinus strobus*, Victoria Beach. Immature, with a conical stage apparently belonging to *Phaeosclera*.
- Pezizella inquilina** (Karst.) Rehm. On stems of *Equisetum* Berens River. Ascospores $c. 6 \times 1\frac{1}{2} \mu$.
- **viridiflavescens** Rehm. On old *Populus* and *Salix*, Birds Hill, Univ. Apothecia lemon-yellow, $\frac{1}{2}$ in. wide, asci $25-30 \times 4 \mu$, with 8 spores crowded at the apex; spores $4-6 \times 1\frac{1}{2} \mu$.
- Taylora** (Karst.) Rehm. On old *Salix*, Univ. Apothecia reddish to yellowish. Spores $c. 8 \times 1\frac{1}{2} \mu$. Nannfeldt (11) transfers *Peziza zylita* Karst. to the genus *Cistella*, but excludes *Pezizella zylita* Rehm.
- Phiala cyathoides** (Bull.) Gill. Common on and herbaceous stems, including *Aster*, *Cirsium arvense*, *Medicago sativa*, *Melilotus* sp. and *Sonchus oleraceus*, Univ. Cups white, stalked, spores $9-12 \times 2-3 \mu$.
- **scutula** (Pers.) Gill. On old *Polygonum* sp. and *Vitis vulpina*; Univ. and Winnipeg. Apothecia yellowish, spores $16-25 \times 4-6 \mu$.
- **vulgaris** (Fr.) Rehm. Frequent on fallen branches of *Cornus*, *Salix*, *Viburnum*, etc., Univ., Victoria Beach eastward. Apothecia stalked white, spores $7.9 \times 2 \mu$.
- Pseudopeziza medicaginis** (Loh.) Sacc. Common on *Medicago sativa* wherever cultivated in Man. and Sask.; on *Melilotus alba* in Man., coll. J. E. Macfarlane.
- **repanda** (Fr.) Karst. On *Galeum triflorum*, Birds Hill, Univ. Preceded by the conical stage *Placophæria punctiformis*.
- **Ribis** Kitchin. On *Ribes Grossularia*, *R. nigrum* and *R. vulgare*, Saskatoon and Indian Head, Sask.; see *Glossosporium Ribis*.
- **Trifolii** (Berk.) Fückel. One collection on *Trifolium pratense*, Minaki, Sept. 22, 1925; coll. I. L. Connors.
- Pyrenopeziza compressula** Rehm. On old stems of *Laportea canadensis*, Selkirk, Univ. Apothecia abundant, gray nearly black on outside when dry, spores $8-12 \times 2 \mu$.
- **Medicaginis** Fückel (*Pseudopeziza Jovensis* Nannf.). Rare on *Medicago sativa*, Indian Head, Sask. and Univ., Man. Conical stage with spores $4-7 \times 1\frac{1}{2}-2\frac{1}{2} \mu$.
- Sclerotinia Alai** Maul. On seed of *Alnus incana*, Vivian, April 25, 1934; H. H. Whetzel. Only three apothecia were found.
- Betulae** Woron. Common in early May on fallen seeds of *Betula alba* var. *papyrifera*, Victoria Beach. Apothecia with long stalks, spores $c. 15 \times 6 \mu$.
- **Candellearia** (Lév.) Fückel. Sclerotia considered by H. H. Whetzel perhaps to belong to this species were found on fallen leaves of *Quercus macrocarpa*, Univ., Sept. 20, 1935.
- fructicola** (West.) Rehm (*S. americana*). Conical stage on *Prunus nigra* (cult.) Brandon, Univ., found in 1922, 1923, and 1935 only; sparse slight, on *P. Berens*, Morden, on *P. melanocarpa*, Saskatoon and Taché, Sask.

Sclerotinia pseudotuberosa (Ell.) Rehm. On scorns of *Quercus macrocarpa*, Univ. Found once in the woods, can be obtained rather easily by gathering old scorns and keeping them in a moist chamber. Spores $8-9 \times 5-6 \mu$.

Sclerotium (Lib.) de Bary. Sclerotes commonly found in cultivated. *Helianthus annuus* showing stem rot in Man. and Sask. Apothecia have been found in the field or obtained in damp chambers from these sclerites in a few cases. Sclerotes common also on rotted roots of *Daucus carota* and *Pastinaca sativa* in storage in Man. and Sask. Sclerotes occasionally found in *Achillea* roots, *Rhus glabra* var. *copallina*, *Cornus corymbosa*, *Cucurbita sativus*, *Dahlia* sp., *Isa grandifolia*, *Larix laricina*, *Malva sylvestris*, *Rudbeckia laciniata* var. *hertoniensis*, *Urtica gracilis* and *Trifolium pratense* in Man. See Roby (60, 64).

Tremula (Cooke & Ph. Ell.) Rehm. Amongst fallen leaves, Winnipeg, Sept. Small reddish sclerites give rise each to one to four minute stalked apothecia, spores $c. 6 \times 1\frac{1}{2} \mu$.

Tapesia Roseae (Pers.) Puckel. On stems of wild *Rosa* sp. Univ. Apothecia brown, acule, spores $7-10 \times 1\frac{1}{2}-2 \mu$.

Trichopeziza albulosa (Pers.) Sacc. On deciduous wood, Univ., det. F. J. Seaver.

Tympana Pinnatri Tul. On coniferous wood, Kenora. The asc contain numerous small spores.

— **spermatospora** Nyl. Not uncommon on bark of *Populus*, Univ. eastward. The asc contain many spores $2-4 \times 1 \mu$.

PHACIDIALES

Clithria lactea (Cooke & Peck) Ell. & Ev. On used stems of *Lefum grandifolium*, Berens River, July. Disc of apothecia whitish, spores $20-40 \times 1\frac{1}{2}-2 \mu$.

Cryptomyces Pteridis Robert & Rehm. On fronds of *Pteridium latifolium* (*Pinnis aquilae*), Mank. Produces black stromata on the leaves.

Ocellaria ocellata (Pers.) Schroet. On twigs of *Salix*, Univ. Apothecia golden, crumpled through the bark, spores $30-40 \times 11-14 \mu$.

Ostropia cinerea Pers. Fr. On fallen branches of *Cornus stolonifera*, *Fraxinus pennsylvanica*, *Populus*, *Quercus macrocarpa*, Sask. and Univ. (also *Quercus americana* Univ. Spores to $250 \times 2 \mu$.

Propolis faginea (Schreb.) Karst. Common on old occluded wood and stumps, including *Fraxinus*, *Populus* and *Quercus*, Univ. eastward. Apothecia whitish, elongate, flat, spores $20-30 \times 8-8 \mu$.

Rhytisma acerinum (Pers.) Fr. On leaves of *Acer Ginnale* and *A. saccharinum*, Portage la Prairie and Univ. Not common, but the hosts are not uncommonly grown.

— **Andromedae** (Pers.) Fr. On *Andromeda polifolia* in the coniferous regions of Man., north to Churchill and at Prince Albert, Sask.

[— **Asteria** Schreb. The black spots rather commonly found on leaves of *Aster* were found in all cases to be caused by larvae.]

— **punctatum** Pers., Fr. Common on leaves of *Acer spicatum* in eastern Man.

— **salicinum** (Pers.) Fr. Everywhere in Man. and Sask. on leaves of *Salix*.

Schizoxylon compositum Ell. & Ev. On branches of *Acer Negundo* and *Cornus*, Univ. The long ascospores break up into segments $4-10 \times 3-4 \mu$.

— **disiplana** Karst. var. *Symphoricarpi* Rehm. On twigs of *Symphoricarpos occidentalis*, Univ. Spores $100-150 \times 1.1 \mu$. Det. J. F. Brinkley, who has studied this fungus in North Dakota.

— **insigne** (de Not.) Rehm. On twigs of *Prunus*, Univ. The long ascospores break up into cells $6-8 \times 3-4 \mu$.

— **sepincola** Pers. On *Pinus canadensis*, Gim. Asc. $c. 200 \times 3 \mu$, 8 spored, spores $220-250 \times 4 \mu$, multiseptate.

Sphaeropeziza Vaeolinis Rehm. This species or a form on old leaves of *Arctostaphylos uva-ursi*, Victoria Beach. Spores $12-15 \times 5-6 \mu$, becoming 4-celled.

Stictis curtispora Dearness & Roby (71, 54). On dead branches of *Populus tremuloides*, Univ. Despite considerable search, no further collections of this *Stictis* have been obtained. The spores are short, $28-40 \times 2 \mu$.

— **fusca** Ell. & Borth. On twigs of *Viburnum Lentago* and *V. Opulus*, Univ. The gray apothecia break through the bark, spores $120-200 \times 1-2 \mu$.

— **mollis** Pers. On twigs of *Corylus americana*, Indian Head, Sask., of *Viburnum Opulus* and *Populus*, Univ. and Victoria Beach, Man.

— **radiata** (L.) Pers. On twigs of *Viburnum Lentago*, *Populus*, etc., Univ., Victoria Beach. Disc flesh-colored, margin stellate or radiate.

HYSTERIALES

- Didymaspora Papuli** Dearness & Ruby (7) 64. On galls on *Populus balsamifera*, Birds Hill, Gumb. Winnipeg. *Pyrenidia* present with spores $18-30 \times 1.3 \mu$. This fungus remains uncertain. The galls took like the ones on this host in Sask. upon which *Cucurbitaria angulata* (Fr.) was found, but no *Cucurbitaria* has been found in Man.
- Glenium stellatum** Muhlensch. in Fr. On decayed *Abies balsamea*, Victoria Beach. Spores 3-celled, $c. 20 \times 8 \mu$.
- Graphyllum manitobense** Dearness & Ruby (7) 65. On *Phragmites communis*, Clear Lake, coll. I. L. Connors. Spores muriform, $20-25 (32) \times 8-12 \mu$.
- Hypoderma scirpinum** DC. On *Scirpus caprice*, Emma Lake and Vanda, Sask.
- Hypodermella ampla** (J. J. Davis) Dearness. On needles of *Pinus Banksiana*, Elk Island near Victoria Beach, Man. and Macdowall, Sask. Spores with a gelatinous sheath.
- *concolor* (Dearness) Darter. Recorded by Darter (The Hypodermataceae of Conifers, Corv. Arnold Arboretum, 1932) on needles of *Pinus contorta* var. *balfouriana* (= var. *Murrayana*) Cypress Hills Forest Reserve, Sask., and found there also by R. L. Russell, June 25, 1936. Ascomatae $40-55 \times 5-7 \mu$, with a hyaline sheath.
- Hysterium acuminatum** Fr. On twigs of *Juniperus horizontalis* and *Pinus canadensis*, Berens River, Victoria Beach. *Hysterothecia* small, spores $12-16 \times 7-8 \mu$, brown, 4-celled, sometimes p to 21μ long. This "alpine" form is not uncommon, but is not detected unless the twigs are gone over with a hand lens. *Myrtilodon decipiens* may be included.
- insidens** Schw. On wood of *Cedrus canadensis* Univ. Spores $c. 40-42 \times 6 \mu$, becoming 8-septate, brown with the apical cells lighter.
- pulicaria** Pers. Common on old bark of *Betula alba* var. *papyrifera*, Berens River southward. Spores $20-28 \times 5-8 \mu$, 4-celled, end cells pale.
- Hysterographium flexuosum** (Schw.) Rehm. On twigs of *Viburnum Lentago*, Univ. Spores muriform $40-52 \times 18-20 \mu$, brown.
- *Fraxini* (Pers. de Not. On almost every dead branch of *Fraxinus pennsylvanica* across Manitoba, rarely on *Viburnum Lentago* and 1 *Ostrya*. Can be found with mature spores any month during the year. Spores $34-44-48 \times 1.5-1.8 \mu$. Small *Hysterothecia* were found to contain spores as large as those in the large *Hysterothecia*.
- Mori** (Schw.) Rehm. Common on old wood, especially of *Populus* and *Salix*, Norway House south to Univ. Spores brown, $15-23 \times 6-10 \mu$, 3 to 5-septate, with one to three longitudinal septa.
- *norcanadiensis* (F. l.) Rehm. On wood of conifer, Berens River. Spores muriform golden yellow, $38-48 \times 11-14 \mu$.
- Lophium mytilinellum** Fr. On coniferous bark, Norway House. *Hysterothecia* short, 0.2-0.4 mm., spores $90-120 \times 1\frac{1}{2}-2 \mu$. Perhaps only a small form of *L. mytilinum*.
- *mytilinum* (Pers.) Fr. On bark of *Larix laricina*, old *Pinus canadensis*, *Pinus Banksiana*, and boles of *Pinus*, Berens River to Univ. *Hysterothecia* 0.4-0.8 mm. long, spores up to $150 \times 2\frac{1}{2} \mu$.
- Lophodermium juniperinum** (Fr.) de Not. On old needles of *Juniperus horizontalis*, Victoria Beach. Asci $c. 100 \times 1.2 \mu$, spores filiform, about 2μ wide, with sheath.
- *7Piceae* (Furtk.) v. Holb. On needles of *Abies balsamea*, Berens River, Man. and perhaps at Karamore Lake, Sask. *Hysterothecia amphigenum*, spores $50-80 \times 2 \mu$. Conspicuous browning and death of the affected foliage occurs.
- *Pinastri* (Schrad.) Chev. On needles of *Pinus Banksiana*, Norway House southward and at Macdowall, Sask.
- *ephaerelloides* (A. b. & Schw.) Duby. Common on fallen leaves of *Ledum groenlandicum*, Berens River southward.
- tumidum** (Fr.) Rehm. On overwintered leaves of *Androsace alpina*, Indian Head, Sask.
- Mytilodon Karstenii** Sacc., or near. On coniferous wood, Norway House. Spores $38-48 \times 4-5 \mu$, 5-celled, brown.
- *Thujaeum* (Cooke & Peck) Lehman. On *Thuja occidentalis*, eastern Man. Spores $29-41 \times 10-13 \mu$, brown, mostly 4-6-celled, the two center cells often larger.

TUBERALES

- Pseudobutyraria microspora** Diehl and Lambett (Mycologa, 22: 223, 1930). Found in a mushroom bed near the Univ. by W. F. Hanna; identification verified by J. B. Lambert.
- Tuber candidum** Hark. Beneath bark on a fallen log of *Populus* L. var., Sept., coll. J. H. Cragg. Tuber white, with 4 spores, spores $33-44 \times 23-33 \mu$. Identified by Dr. Gilkey. She writes: "Since I received your specimen I have collected several of the same species in similar situations, though previously I had never seen it grow elsewhere than under several inches of earth."
- *separans* Gilkey. One specimen in Assiniboine Park, Winnipeg, (W. Lowe; det. Dr. Gilkey). First found in California, reported from Isle Royale Mich. by Fowls (13).

PERISPORIALES

- Aploporina Callinalii** (Schw.) v. Höhn. The witches' broom of *Amelanchier alnifolia* is very common across Man. and Sask.
- Erysiphe Cichoracearum** DC. Collected on *Anemone trifida*, *Aster Lindleyanus*, *L. nananthus*, *L. brachanthemum* sp. (cult.), *Galium* sp., *Geranium sanguineum*, *Hieracium annuus* and *H. alabastrum* (cult.), *H. diureticum*, *Hieracium canadense* Lappala deflexa L. (cult.), *Menkia arvensis* var. *canadensis*, *Veronica paniculata*, *Plantago major*, *Rudbeckia hirta*, *Stachys palustris* and *Zizia aurea* (cult.) in Man.; generally in the conical stage causing no injury to *L. annua hybrid* (cult.) in Winnipeg since 1923; on *Veronica paniculata* and species of *Artemisia*, *Aster*, and *Solidago* in Sask., and possibly in the conical stage on *Althaea* sp. (cult.), Saskatoon, Sask.
- **Caloglyphis** DC. On *Calcepsa tetralix*, Tadsa, Sask., probably on *Menkia glabra*, *Asplenium platyneuron* and *Stachys palustris* in Man., and on *Stachys arvensis* at Avenhurst, Sask.
- graminis** DC. On *Aspergillus repens*, *Rockrose*, *Aspergillus*, *Hordeum jubatum*, *Poa compressa*, *Scirpus cespitosus* and *Trisetum* (cult.) in Man. and Sask., sometimes causing some injury to rice or wheat, on *Hordeum vulgare*, *Panicum polystachyon*, *Poa nemoralis*, *P. polystachyon*, *P. pratense* in Man., extending north to Churchill. A common and highly specialized fungus on the Gramineae.
- **Polygoni** DC. On *Isoplethium* sp. (cult.) often injurious, *Lathyrus odoratus* (not yet injurious), *L. renouardii*, *Oenothera biennis*, *Polygonum erianthum*, and *Taraxacum officinale* in Man. and Sask., on *Impatiens minima*, *Calla palustris*, *Lythrum hyssopifolium*, *Poa nemoralis*, *Polygonum aviculare* and *Thalictrum dasycarpum* in Man., on *Polygonum anglicum* in Sask. This sudden on red clover first appeared in Man. in 1922, was serious in 1923, is prevalent now as far north as The Pas, but not so injurious.
- Microphoma Alni** DC. Wint. On *Thuja occidentalis* Berd. H. J. Man. and Emma Lake, Sask., on *Corylus* sp., *Lonicera plantaginifolia* and *L. tartarica* in Man. and Sask., on *L. Nuttallii*, *Syringa vulgaris* and *Laburnum leucogalium* in Man., on *Betula* sp. and *Viburnum acerifolium* var. *angustifolium* in Sask.
- **Alni** var. **calceoladophora** (Atk.) Summ. On *Quercus macrocarpa*, Univ. The tips of the appendages near lateral branches.
- **diffusa** Cooke & Peck. Probably this species on *Lathyrus odoratus* in Man. and Sask. and on *Symphoricarpos occidentalis* in Man. and *S. alba* in Sask.
- Phyllactinia corylea** Pers. karst. On *Betula alba* var. *papyrifera* in Man. and Sask., on *Calcearia canadensis*, *Cornus stolonifera* and *Corylus rostrata* in Man., on *Alnus incana* and *Cornus paniculata* in Sask.
- Podosphaera Oxyacanthae** (DC.) de Bary. On *Amelanchier alnifolia*, *Prunus pennsylvanica* and *Prunus* spp. (cult.) in Man. and Sask., on *Prunus pensilvanica* in Man. and *P. melanocarpa* in Sask. Sometimes injurious to *Prunus*.
- Rhizoglyphus Symphoricarpi** Syd. On leaves of *Symphoricarpos occidentalis* (Cadyly, Katerwa, and Sutherland, Sask.). This rare and interesting fungus can be found on the living leaves during the summer, but the ascospores are not mature. Leaves wrapped in cellophane by R. C. Russell and placed under a hedge over winter showed spores fairly mature by May 13, 1931. These spores were $10-13 \times 5-6 \mu$, two-celled, yellowish-brown. See Mycologa, 20: 292 for stat. of *Lamphoglyphus*. *Lamphoglyphus* J. Hunt. as described in N. A. Pyrenomyces.
- Sphaerotheca Humuli** (DC.) Burt. On *Rosa* spp. (wild and cult.), *Rubus strigosus* var. *strigosus* and *Fragaria* sp. (cult.) in Man. and Sask., on *Epilobium adenostachyum*, *Gratiola macrophyllum*, *G. strictum*, *Humulus lupulus*, *Rhus glabra*, *Rosa blanda*, *Rubus triflorus* in Man.,

on *Gibbs linearis* and *Viola canadensis* in Sask. The mildew found in the conidial stage on roses in greenhouses or gardens is included here, although *S. pannosa* may sometimes be present on these roses. Powdery mildew of Raspberry was injurious in Man. in 1935.

Sphaerotheca Humuli var. **fuliginosa** (Schlecht.) Salmon. On *Shepherdia canadensis* and *Taraxacum officinale* in Man. and Sask., on *Agrostis Fenzliana*, *Bidens frondosa*, *Viola canadensis* and *Urtica dioica* in Man., on *Bidens glaucescens*, *Veronica longifolia* and *Shepherdia argentea* in Sask. This mildew on dandelion extends to or near Churchill, Man.

— **mos-cusae** (Schw.) Berk. & Curt. On *Ribes floridum* and *R. nigrum* in Man. and Sask., on *R. Hudsonianum*, Lake Wabowee, Sask. The mildew on cultivated buck current was first noted in Man. in 1934, and has caused some damage in subsequent years. It seems likely, however, that the fungus is a "native" of Western Canada.

Uncinula cirsicola Cooke & Peck. On *Acer spicatum*, Victoria Beach eastward. A collection at Munnah had many four-spored asci.

— **negator** (Schw.) Runtz. On *Parthenocissus*, Bethany and Univ., Man. Saskatoon, Sask.

— **Iparrula** Cooke & Peck. One collection on *Fragaria* sp., Univ. The *Uncinula* present agrees with *U. parvula* except that the appendages are rather too long and thick.

— **Sellia** (DC.) Wint. Common on *Populus balsamifera* and *Baxia* spp. in Man. and Sask., on *Populus angustifolia*, Indian Head and Hameack, Sask. Specimens on *Salix* sp. from along the Hudson Bay railway were noteworthy for showing perithecia but very little mycelial development.

HYPOCREALES

Acroperium compressum Tode. On old *Agropyron* and *Bromus*, Univ., May. Perithecia erect, spores $c. 300 \times 1 \mu$. Moe Brandriff (Mycologia, 28: 228) is inclined to place this puzzling fungus near the *Coccyliades* and *Pseudosphaeriales*.

Calonectria Desmazailii Ekl. & Fw. (a form of *C. cinerea* (Berk.) Berl. & Vogl.). On *Massaria* on *Amelanchier alnifolia*, Univ. Asci $c. 100 \times 14 \mu$, spores $21.28 \times 6-7 \mu$, becoming 4-celled.

Chromochroa gelatinosa (Tode) Beaver. On *Salix*, Univ. Stromata soft, greenish-yellow, asci 18-spored, spores $4-6 \mu$, greenish-brown.

Claviceps microcephala (Wallr.) Tul. On *Glyceria* (*Panicularia*) *grandis*, Clamboyne, on *Polygonum persicaria*, Claster. Sclerotia small, on grasses with small spikelets, probably only a form of *C. purpurea*.

— **nigricans** Tul. On *Eleocharis* sp., Carlyle and Saskatoon, Sask.

purpurea (Fr.) Tul. On *Agropyron dasystachyum*, *A. Nodulosum*, *A. tenerum*, *Bromus stercoris*, *Calamagrostis* sp., *Elymus inaequalis*, *E. Maroccanus*, *Hordeum vulgare*, *Suaeda torreyi*, *Spartina gracilis*, *Triticum aestivum* and *T. durum* in Man. and Sask., on *Agropyron cristatum*, *A. repens*, *Avena fatua*, *Dactylis glomerata*, *Elymus canadensis*, *E. curvatus*, *E. distachyus*, *Festuca elatior*, *Hordeum jubatum*, *Phalaris minor*, *Poa pratensis* and *Silene viridula* in Man., Arctic Humber, *A. silene* and *Bromus Pimpinellifolius* in Sask. Common, especially after a damp spring. Rye often suffers dockage at the elevators because of ergot, and livestock may be killed by eating rye screenings containing the sclerotia. One farmer, not knowing that ergot was poisonous, lost 30 head of cattle. *Sclerotium injurious* to durum wheats not common on bread wheat. The sclerotia have been germinated many times. Several records of hosts are from the Rust Research Laboratory, Winnipeg.

Cordyceps Tachidactylaria Rav. in Berk. From an insect pupa, Berens River. Head cylindrical, $7 \times 1 \frac{1}{2}$ mm., yellowish brown, stalk $17 \times \frac{1}{2}$ mm., brownish, pruinose, asci to $120 \times 4 \mu$, spores $50-100 \times 1 \frac{1}{2}-2 \mu$.

— **clavulata** (Schw.) Ekl. & Fw. A specimen was found by Dr. Deane on *Lecanostoma* sp. on a twigment line, Univ.

— **militaria** (L.) Link. Reported by the late Norman Criddle as present on "grubs" at Treesbank, specimens not seen.

[*Croconectria* spp. included under the more familiar name *Nectria*.]

Eleutheromyces subulatus (Tode) Jäkel. On old *Agaricus* and *Polyporus*, Norway House, Victoria Beach. Spores with a thin appendage at each end. Prof. H. B. Jackson writes that he agrees with von Röhrl in placing this species in the Fungi Imperfecti.

- Epithelia typhina** (Pers.) Tul. (*Typhodium typhinum* Seaver). Rarely seen in eastern Man. on *Elymus*, etc., more common in southwestern Man., on *Agropyron dasystachyum*, *A. Smilki*, *Calamagrostis incerta* and *C. sp.* in Sask.
- Gibberella Traubmanii** (Mont.) Sacc. (= *G. Zea* (Sacc.) Petr.). One collection on old stalk of *Zea Mays* L. var. The fusarium stage (*F. graminearum* q.r.) has not been encountered in Man. Perithecial wall, blue, spores fusiform, becoming septate.
- Hymenoscypha chionaea** Ell. & Ev. On old deciduous wood L. var., perhaps this species on old leaves of *Populus*, M. var. Previously recorded only from London, Ont. Stromata whitish, small, asc. 6-100 \times 4 μ , 8-spored uniseriate, the spores each divide into two halves about 4 μ in diameter.
- **clitinea** Pers., L. var. On old *Fomes fomentarius* *F. pinicola*, and *Polyporus betulinus*, continuous areas in Man. Halves of spores 3-4 μ .
- **gallina** Ell. & Ev. On old *Polyporus pubescens* Krieger, det. J. J. Seaver.
- **patella** Cooke & Peck. On deciduous wood and old *Hypoxylon* along the Red River.
- **rufa** Pers., L. var. On bark and wood of *As. Agave* and *Populus*, L. var.
- **sulphurea** (Schw.) Sacc. On deciduous wood, L. var. Stromata large yellow, spores 10-12 \times 4 μ , dividing into two segments each 5-6 \times 4 μ .
- Hymenoscypha apiculatus** Peck & Seaver. On deciduous wood, L. var. Stromata effuse, reddish-purple to yellowish asc. 1.0 \times 8 μ , spores 25-32 \times 5 μ , 2-celled, apiculate.
- **aurantius** Pers., Tul. On old *Polyporus odoratus*, *P. picipes*, *P. roseus*, L. var. to Berens River. Stromata orange to brick red, spores verrucose pointed 2-celled 18-24 \times 4.5 μ .
- **lactifluorum** (Schw.) Tul. Common on *Lactarius*, especially *L. piperatus* (q.r.), L. var. to Berens River, reported by travellers in the north to be present up to the Arctic Circle in the Yukon. Discussed and illustrated by Butler (82, vol. II).
- **resolius** (Alb. & Behr.) Tul. On red fungi including *Lactarius* and *Polyporus placidus*, L. var. northward. Stromata rose-colored, spores apiculate 2-celled 20-40 \times 5-6 μ .
- Melanospore lagenaria** (Pers.) Felt. Rather common on old *Fomes pinicola*, Victoria Beach. Perithecia rarefactive or pubescent, yellow then blackish with a beak 1-2 mm. long, spores 10-14 \times 5-8 μ , brownish, continuous.
- Noctria cannabaria** (Tode) Fr. Common on *As. Agave*, *Lactarius scindens*, *Prunus* spp., *Ribes* spp. and *Spartan* sp. cult. in Man., on *Prunus melanocarpa* and *L. mus* *parviflorus* in Sask. Semi-parasitic but not noticeably injurious. Ascospores 14-20 \times 4-6 μ , 2-celled. See also *Tubercularia vulgaria*.
- **truncatibula** Sacc. On fallen Pers., Clear Lake. Asc. immature.
- opiphaeria** (Tode) Fr. On *Dactyloctenium aegyptium* (L.) Walp. sp. etc. Berens River to L. var. Spores 9-12 \times 5-6 μ .
- Peziza** (Tode) Fr. Common around Winnipeg on old *Populus* and other deciduous wood. The perithecia resemble at the top to become pro-convex, spores 10-15 \times 2-6 μ , 2-celled.
- **trubiacarpa** Cooke. On stroma of *Conium*, L. var. Perithecia bright red a few on a conical stroma, asc. c. 60 \times 5 μ , spores 8-10 \times 4 μ , becoming 2-celled.
- Puccinia viridula** (Alb.) (Schw.) Sacc. On *Rumex* spp., very common on *Lactarius* spp., L. var. to Victoria Beach eastward. The mycelium prevents the development of the gills, and produces a striking greenish stroma over them.
- Scleronectria balsamea** (Cooke & Peck) Seaver. Common on branches of *Abies balsamea*, Berens River south and east.
- Sphaeroderma Hualashanensis** Ordw. On dung of rabbit. Seaver (rev. Sask., det. R. F. Cain).
- Thyronectria berolinensis** (Sacc.) Seaver. Common on *Ribes floridum* and the cultivated species *R. aurum*, *R. Grossularis* and *R. vulgare*, L. var. Spores muriform, 15-25 \times 5-8 μ .
- ### DOTHIDEALES
- Coreopella Bishyi** Dearson (71: 86). On branches of *Fraxinus pennsylvanica*, L. var. Type collected Apr. 22, 1928, collected also May 20, 1928, has not been seen since. Stromata black crumpled containing loculi with asc. 75-100 \times 12-16 μ , spores 20-25 \times 7-10 μ , muriform.
- Dibotryon morbosum** (Schw.) Thoms. & Syd. (*Phaeoglyphis morbosus* (Schw.) Sacc.). Very common on *Prunus virginiana*, *P. pensilvanica*, and a *Prunus* cultivated for its flowers, called "May-day tree," in Man., on *P. melanocarpa* and *P. pennsylvanica* in Sask.

- Dothidea ribealis* (Pers.) Fr. On *Ribes floridum* and *R. vulgare*, Univ.
- Elsinoe* Ledt (Peck) Zeller (*Autographium* Ledt Peck). On living leaves of *Ledum groenlandicum*, eastern Man. The fungus and disease are as described by Zeller and Dreierwab (Phytopath. 31: 965, 1931).
- Endodothella?* sp. On overwintered stems of *Thlaspius rhombifolia*, Saskatoon and Totake, Sask., May and June. Stroma forming a thypus with the epidermis, irregular, black, containing locules with asci containing spores $12-15 \times 5-6 \mu$, brownish, rather unequally 2-celled. Description not found, material mostly immature.
- Montagnella Helicoidalis* (Sclero) Ell. & Ev. On old stems of *Aster*, Gretna, C. W. Lowe immature, but the large black stromata are fairly distinctive.
- Ophiostoma alneum* (Fr.) Ell. & Ev. On *Alnus incana*, The Pas, coll. P. H. Gregory. Black stromata on living leaves, no spores found. Seymour includes this amongst the Fungi Imperfecti.
- Phyllostora graminis* (Pers.) Fuckel. On *Elymus canadensis* and *Muhlenbergia cuspidata* in Man. and Sask. on *Agropyron reuteri*, *Agropyron hymenale*, *Elymus argutus* and *Oryzopsis asperifolia* in Man., on *Calamagrostis canadensis* and *Dactylis stricta* in Sask. Thrienen and Sydow (Ann. Myc. 13: 431) restrict the name *P. graminis* to the form on *Elymus*.
- *Heraclei* (Fr.) Fuckel. On *Heracleum lanatum*, Winnipeg Beach.

MICROTHYRIALES

- Diplocarpon Rosae* Wolf (see *Actinostroma*). On overwintered leaves of *Rosa* sp. cult. Saskatoon, Sask.
- Halbanella* (*Asteridium*) Linnæus Desmaz. (71: 66). Type on leaves of *Linnæa borealis* var. *americana*, Victoria Beach. Perithecia $100-120 \mu$ wide, asci $20-27 \times 12-15 \mu$, spores hyaline, 4-celled, $13-18 \times 3 \mu$. Also recorded from New York.
- Stigmaton Juniperi* (Desm.) Wint. (*Synsethia* Arc.). On leaves of *Juniperus communis*, Victoria Beach, June-July. Ascomycetes $c. 20 \times 8 \mu$.
- *rubicola* (Ell. & Ev.) Thiers. (*Asterion rubicola* Ell. & Ev.). On leaves of *Rubus idaeus* var. *acutispinus*, Clear Lake, Keewatin, Winnipeg. Ascomycetes 2-celled, $12-15 \times 7-9 \mu$.

SPHAERIALES

Chaetomiaceae

- Ascotricha pusilla* (Ell. & Ev.) Chivers (*Chaetomium filicinum* Sacc. & Syd.). On rotting lath in greenhouse; Saskatoon, Sask. Hairs slender tapering spores $6-7 \times 4-5 \mu$.
- Chaetomium bostrychodes* Zopf. On dung of horse, goat and sheep, Univ. Hairs coiled, spores $8-8 \times 5-6 \mu$.
- *elatum* Kunze & Schmidt. Common on mouldy heads or straw of wheat and barley, old becom, iris leaves, partridge dung, etc., in Man. and Sask.
- *funicola* Cooke. On dead seedlings of barley, old paper and isolated six times from soil in Man. $6-7 \times 2-4 \mu$.
- *fusiforme* Chivers. On dung of porcupine, Clear Lake; det. R. P. Cain. A rare species.
- *globosum* Kunze (*C. thiosum* Cooke & Ell.). On glumes of *Triticum aestivum* and in soil in Man., on dead wheat plants, Aansholm, Sask., on dung of rabbit at Beaver Creek, Sask.
- *indurum* Corda (*C. serotum* Wint.). One isolation from butter. $6-8 \times 4-5 \mu$.
- *murorum* Corda. On old herbs, dead crowns of cereals, and dung of horse and sheep in Man. $12-14 \times 7-8 \mu$.
- *spirale* Zopf. On paper in a laboratory culture. Spores brown, slightly apiculate, $9-10 \times 7-8 \mu$. One isolation from soil also apparently belongs here.

Sordariaceae

- Bombardia arachnoides* (Niesl) Cain (3: 73). On dung of deer and porcupine, Clear Lake, Man., of rabbit, Emma Lake, Sask. det. R. P. Cain.
- *caerulea* (Petz.) Cain (3: 70). On horse dung; Univ. Perithecia bluish purple, spores cylindrical, multiguttate. $40-50 \times 4 \mu$, with a geatmous appendage about 40μ long at each end.
- *enophrilla* (Fr.) Kirsch. On cultures of horse dung, Univ. Spores $40-60 \times 3-5 \mu$ with long apical appendages, finally swelling at one end.

- Coniochaeta discospora* (Auerw.) Cain. On dung of porcupine, Clear Lake, Man., of rabbit, Beaujeu, Man., Emma Lake and North Battleford, Sask., all det. R. F. Cain. On dung of ptarmigan, Long Point near Churchill, Man., coll. Wm. Gussow; perithecia bearing short, dark hairs, asci c. 100 \times 12 μ , uniserial, spores disc-shaped, surrounded by a mucilaginous envelope, 12-13 \times 10 \times 5 μ .
- *leucospora* (Berl. & Rav.) Cain. On dung of porcupine, Clear Lake, Man., of rabbit, Beaujeu, Man., and Humboldt, Sask., all det. R. F. Cain. Also at Victoria Beach, Man., spores discoid, c. 10 \times 7 \times 4 μ .
- *Saccardoia Marchaii* (Cain) (2 65). On dung of porcupine, Clear Lake, Man. of rabbit, Emma Lake, Marlborough, Muenster and Prince Albert, Sask., all det. R. F. Cain. Not recorded by Cain elsewhere in North America.
- Deltachia hispaniola* (Crous) Hansen. On dung of porcupine, Clear Lake, Man., of rabbit, Beaujeu, Man., Dana, Marlborough, Muenster and Prince Albert, Sask., all det. R. F. Cain. On bird droppings from Berens River, perithecia with stiff bristles up to 100 μ long \times 6-8 μ at base, spores 18-20 \times 6 μ , brown, constricted at the septum.
- *furfuracea* Nard. On rabbit dung sent to Ottawa from Long Point near Churchill, coll. Wm. Gussow, det. H. Dowding. Hyphae brown, 2-celled, 42-50 \times 18-20 μ , with a hyaline sheath.
- Marchalia* Berl. & Vogl. On dung of porcupine, Clear Lake, Man. of rabbit, Beaujeu, Man. and Dana, Sask., all det. R. F. Cain. On rabbit dung, L. v., Man., spores 10-11 \times 5-6 μ , 2-celled with a hyaline sheath.
- *thelangiomerula* Cain. On rabbit dung, Vivian. Perithecia nearly smooth, spores 20-24 \times 6-7 μ , 2-celled with lateral germ-slits.
- *Winteri* (Phill. & Pless.) On rabbit dung from Beaver Creek, Sask., det. R. F. Cain.
- Gelasinospora cerealis* Dowd. (fig. 122). Isolated from diseased crown of *Avena sativa*, Rostkov from diseased crown of *Triticum durum*. Delonchae inoculations by J. & Marchaux. Perithecia subglobose membranaceous, 600-700 \times 300-400 μ , asc. 21'5-260 \times 23-25 μ , with two radial thickenings near the apical perforation; spores 8 per ascus, 26-32 \times 23-25 μ , marked with "dimples" or foveolate sculpturing over the surface of the spore. The genus *Gelasinospora* was erected to include this and the following Manitoban species.
- *tetraneurina* Dowding (122). On dung of ptarmigan from Hudson's Bay, 30 miles north of Fort Churchill, Man., coll. Wm. Gussow, isolated and studied by H. Dowding. Apparently also in Ontario and England. Perithecia black membranaceous periform c. 600 \times 200 μ , asc. normally 4-spored c. 230 \times 8 μ , spores mostly 20-24 \times 12-16 μ , hyaline then greenish black foveolate. Dr. Dowding reports details of the life history, and it has also been used by Dodge in his studies of sex, etc. (see *Mycologia*, 27: 429, 1935). See also Buller (82, vol. V: 110).
- Hypocynoph. mandarina* (Fr.) Fr. On rabbit dung, Beaujeu, Man. and Dana, Sask., det. R. F. Cain.
- Pileuraga heterochaeta* Griff. (a. Saccaria). On horse dung, L. v. Perithecia clothed with agglutinated hairs, asc. 16-spored, biserial, spores 20-24 \times 15-20 μ , with two gelatinous appendages at each end, sometimes fused at one end.
- Sordaria anomala* (Griff.) Sacc. On bird droppings, L. v. Perithecia smooth above the mycelium in which it is imbedded, greenish with a short black beak, asc. 4-spored, spores 22-24 \times 18-19 μ , with a primary appendage about as long as the spore.
- anagoria* (Fr.) Wint. (*Pileuraga anagoria*). On horse dung, L. v. and Victoria Beach. Det. in part by R. F. Cain. Perithecia dark periform, asc. normally 4-spored, spores normally 26-42 \times 18-21 μ . Illustrated by Dr. Dowding (119) who studied the sex in this species. Also found about one spore in a thousand to be a giant spore about one in two hundred to be a "dwarf". See Buller (82, vols. IV and V).
- *bombardisoides* Auerw. On dung of porcupine, Clear Lake, Man., of rabbit, Annaheim and Emma Lake, Sask., all det. R. F. Cain. Also at L. v. and eastern Man., perithecia smooth, coriaceous, spores 20-30 \times 15-12 μ , surrounded by a gelatinous sheath.
- *elitaria* Petr. Abundant in damp rhubarb on dung of porcupine from Clear Lake and eastern Man., det. R. F. Cain, who finds that it agrees with Petr. & Petch's description. This species is apparently known only in Cryon and Manitoba, fairly common in both places, on dung of elephant and of porcupine. The fungus, as Cain points out in a letter, is really a

- Bombardia.** It is first evident as a thin lemon yellow veft of mycelium over the dung, from which arise bottle-shaped phosides which produce globular phosospores, then perithecia appear covered with a velvety green tomentum. spores 3 per ascus, 65-85 \times 4-6 μ , with a thin hyaline ash projecting from each end up to 30 μ long, some spores 6na. v develop yellow swellings near one end, the remainder of the spore constituting long and short appendages.
- Sordaria collapsa** (Griff.) Sacc. On rabbit dung, Macdonald, Sask., det. R. F. Cain. On dung of rabbit and goat, Univ. Man., aeri 200-300 \times 80-100 μ , with about 64 spores, spores 16-23 \times 10 μ , with appendages which freely collapse.
- curvicolle** Wint. On dung of porcupine, Clear Lake, Man., of rabbit, Emma Lake and Muenster, Sask., all det. R. F. Cain. On dung of goat, rabbit and sheep, Univ. Man., spores 28 or more per ascus, 16-9 \times 10-14 μ , with primary and secondary appendages. See Buller (82, vol. V, as *Pleurozia curvicolle*).
- curvula** de Bary (*Pleurozia curvula* Fuekel (Griff. & Weaver). On dung of porcupine, Clear Lake, Man., of rabbit, Beaver Creek, Dana, Emma Lake and Muenster, Sask., all det. R. F. Cain. On dung of goat and rabbit, Univ. Man., hairs short, in tufts near the apex of the perithecia, spores 22-26 \times 14-16 μ , with appendages.
- decipiens** Wint. On dung of horse, Victoria Beach, Man., of rabbit, Muenster, Sask., det. R. F. Cain. Also at Univ. Man., perithecia smooth translucent, spores 38-42 \times 20 μ , with primary and secondary appendages.
- erosata** (Griff.) Sacc. On dung of horse, Univ. Man. This species is anomalous in the lack of a beak on the perithecium. Secondary appendages were not noted on the spores, otherwise the fungus fits Griffith's description, verified by R. F. Cain.
- finibrista** Bayer. On rabbit dung, Scott, Sask., det. R. F. Cain.
- fimicola** (Ruh.) Sacc. & de Not. Common on dung in Man. and Sask. occasional in soil or from dead parts of cereals in Man. from seeds of *Prosoa*, Saskatoon, Sask. Spores 16-20 \times 10-12 μ , with the germ pore surrounded by a gelatinous sheath. See Buller (82, vol. V, as *Pleurozia fimicola*).
- imperfecta** Cain. On dung of horse and rabbit, Univ. Man. Perithecia 600-700 \times 400-500 μ , smooth, aeri 240-250 \times 60 μ , with about 64 spores, spores 19-21 \times 11-12 μ , with appendages usually eccentric at each end of the spore.
- linguiformis** Cain (3-13). On dung of porcupine, Clear Lake, Man., of rabbit, Prud'homme, Sask., both det. R. F. Cain.
- macrospora** Auers. Cultured on agar from dung of rabbit, Univ. Man. Spores larger than in the common *S. foveola*, being 25-32 \times 15-18 μ , entirely surrounded by a gelatinous envelope.
- minuta** Fuekel. On dung of horse, Victoria Beach, Man., of rabbit, Beaver Creek, North Battleford and Prud'homme, Sask., all det. R. F. Cain. On old horse dung, Univ. Man., hairs tufted short, curved, spores 20-23 \times 13-14 μ , with primary and secondary appendages.
- neglecta** Hansen. On dung of porcupine, Clear Lake, Man. det. R. F. Cain.
- ontariensis** Cain. On rabbit dung, Beaver Creek, Sask., det. R. F. Cain.
- pleiospora** Wint. On rabbit dung, Muenster, Sask. (Cain (3-45) states that these specimens have 16-spored aeri and spores 31-36 \times 20-24 μ).
- septospora** Cain. On dung of porcupine, Clear Lake, det. R. F. Cain.
- setosa** Wint. On dung of rabbit, Dana and Emma Lake, Sask., det. R. F. Cain, Univ. and eastern Man. Spores about 128 per ascus, 18-24 \times 11-14 μ , with a primary appendage bearing a secondary appendage, at each end of the spore.
- stentila** Hansen. On porcupine dung, Clear Lake, det. R. F. Cain.
- taenioides** (Griff.) Sacc. On horse dung from Victoria Beach, det. R. F. Cain. On dung of goat and horse, Univ. Man. spores 4 per ascus, 56-62 \times 29-32 μ , apiculate at one end and with very long gelatinous appendages.
- tetrastroma** Wint. On dung of porcupine, Clear Lake, Man. of rabbit, Beaver Creek, Emma Lake and Prud'homme, Sask., all det. R. F. Cain. On rabbit dung, Univ. Man., perithecia translucent with short, white hairs, spores 4 per ascus, 18-20 \times 12-13 μ , with appendages.
- vestita** Zopf. On dung of horse, Victoria Beach, Man., of rabbit, Beaver Creek, Muenster and Prud'homme, Sask., all det. R. F. Cain. On dung of horse and goat, Univ. Man., perithecia greenish, with few olivaceous hairs, spores 30-34 (40) \times 18-20 μ , with characteristic primary and secondary appendages.

- Sordaria xygospora* Speg. On horse dung, Univ. Man., on rabbit dung, Beaver Creek Sask. det. R. F. Cain. This unusual fungus is apparently rare in Man.
- Sporormia australis* Speg. On rabbit dung, Prince Albert, Sask., det. R. F. Cain.
- *dakotensis* Griff. On dung of porcupine, Clear Lake, Man. of rabbit, Beaver Creek and Dana, Sask., det. R. F. Cain.
- *fasciculata* Jensen. Two isolations from soil in Man. (76). Asci 40-55 \times 20-27 μ , 8-spored, spores 4-celled, beaver 28-32 \times 6-7 μ .
- *heptamera* Auerw. On rabbit dung, Beaver Creek Sask. det. R. F. Cain.
- *intermedia* Auerw. On rabbit dung from eight localities in Sask., det. R. F. Cain, on cow dung, Univ. Man. spores 4-celled, 51-54 \times 9-10 μ . Possibly this species on an old wooden stump, Univ. spores 35-42 \times 8-9 μ .
- Iata* Griff. On dung of porcupine, Clear Lake, Man. of rabbit, Beaver Creek and Dana, Sask., al det. R. F. Cain. On rabbit dung, Univ. Man. spores 4-celled, 44-50 \times 17-20 μ .
- leporina* Nieuw. On dung of porcupine, Clear Lake, Man. and on rabbit dung from six places in Sask. det. R. F. Cain. Spores as at Univ. Man. horse spores 44-50 \times 17-20 μ .
- Neptosphearioides* Speg. On old pits of *Prunus agria*, Univ. Spores 4-celled, 28-35 \times 4-6 μ .
- *longispora* Cain. On rabbit dung, Dana, Sask. det. R. F. Cain.
- megalo-spora* Auerw. On dung of deer from Clear Lake, Minn., and of rabbit from Prud'homme, Sask., det. R. F. Cain. On old cow dung at Univ. Man. with spores 60-78 \times 13-18 μ .
- *minima* Auerw. On deer dung from Clear Lake, Man., det. R. F. Cain. On dung of cow and rabbit, Univ., spores 26-30 \times 5-6 μ .
- octomera* Auerw. On dung of porcupine from Clear Lake, Man. and of rabbit from Beaujour, Man. and five stations in Sask. det. R. F. Cain. On horse dung, Univ. Man., with spores 8-celled, third cell from the apex enlarged, 43-52 \times 8-9 μ .
- *pilosella* Cain. On rabbit dung from Saskatoon, Sask., det. R. F. Cain (3, 94).
- *tuberculata* Griff. On dung of horse and rabbit Univ. Sask. of perithecia long and tuberculate, asc. 20-150 \times 14-15 μ , spores 4-celled, 28-35 \times 5-6 μ .
- Zygopermalia insignis* (Mouton) Cain (*Deliberia insignis* Mouton). On old horse dung, Univ. Perithecia smooth up to 1 mm high, 500-700 μ wide, spores biseriate, 40-58 \times 12-15 μ , 2-celled, with hyaline appendages extending from each end of the spore to a length of 15-25 μ . Known in Belgium, England, and Manitoba.

Sphaeriaceae

- Acanthostigma* (Clintoni) Peck Sacc. On bark of *Populus*, Univ. Perithecia setose, spores 30-36 \times 3-4 μ , up to 7-septate, hyaline.
- *dispar* Morg. On bark of *Populus*, Univ. Asci c. 80 \times 14-16 μ , spores fusiform, 33-52 \times 4-6 μ , several septate.
- *aeopula* (Conce & Peck) Peck. On old wood of conifer, Kenora. Spores 70-90 \times 3-4 μ , becoming multiseptate.
- Bertia moriformis* (Fridt) de Not. On old wood of *Asperugo* and *Alnus incana*, Norway House, Univ. Spores 36-45 \times 5-7 μ , fused, 2-celled.
- Bertiella thetryosa* Morg. On rotting deciduous wood, Univ. Asci 70-90 \times 7-8 μ , spores biseriate, 28-34 \times 3-4 μ , 5-8-septate.
- Calosphaeria axilis* (Ahl & Schn.) Sacc. (as described in N. A. Pyrenomyces, 347). On old bark and wood of *Populus heterophylla*, Univ. Perithecia black, oblong, 110-140 μ in diameter nearly spherical, then collapsing to deeply concave, seated on a whitish subiculum bearing setae up to 50 or 60 \times 5 μ . Asci nearly annular, 25-35 \times 4 μ , 8-spored discharging from the perithecia in lines or masses connected at the bases, paraphyses absent or obscure, ascospores continuous, hyaline, 4-6 \times 1-1½ μ .
- Chaetosphaeria tetrobarba* (Cooke & Ell.) Sacc. On old *Populus*, Univ. Perithecia setose, spores 12-14 \times 4 μ , hyaline, becoming pale greenish-brown and 4-celled.
- Helminthosphaeria clavariarum* Desm. (Fackl) Roedelius (Jensen) On *Cytisus cristata*, Kenora. The conical stage *Scalenotrichum clavariarum* (p. 6) is followed about October by the perfect stage, which consists of setose perithecia, ascospores white, continuous, brown, 10-14 \times 5-6 μ .

- Laelosphaeria canescens** (Pers.) Karst. On dead *Cornus stolonifera* and *Populus*; Univ. Perithecia with thick-walled, cartaceous, brown, pointed hairs, spores 22-32 \times 4-6 μ , becoming brownish and 2-celled.
- hirsuta** (Fr.) Ces. & de Not. Common on old wood of *Acer Negundo*, *Populus*, and *Salix*, Univ. eastward. Spores 20-45 \times 5-8 μ , cream, often cylindrical, becoming septate.
- hispida** (T. Sacc.) Fackel. On old *Populus*, etc., Univ., Victoria Beach. Perithecia briefly, spores as in *P. hirsuta*, the two species may be synonymous.
- serena** Pers. (Fr.) Ces. & de Not. Common on old wood of *Betula*, *Populus*, *Salix*, etc., one collection on *Prunus stolonifera*, Univ. to Victoria Beach and eastward. Perithecia with a short shagreen, spores contiguously, very large, 45-56 \times 4-6 μ , with a short narrow prolongation as shown in Berlese's *Icones*.
- spermosides** (Hoffm.) Ces. & de Not. On decayed *Populus*, Univ. Perithecia overrun with greenish hyphae, spores cartaceous, oval or baggettulate, 19-21 \times 4 μ .
- striatipes** A. B. & Sacc. Sacc. On old *Populus*, Univ. Basidia 200-325 \times 8-10 μ , asci c. 100 \times 10 μ , spores continuous, c. 28-30 \times 4 μ .
- taubianensis** (Fackel) L. B. & L. v. On old (decaying) wood Univ. Spores hyaline becoming brownish and 2- to 4-celled, 28-34 (or longer) \times 5-8 μ .
- **viridicoma** (Ces.) & Fack. Sacc. On dead *Populus*, etc., Univ., Victoria Beach. Perithecia covered with a dense close yellow-green tomentum, spores 32-44 \times 7-10 μ , 4-celled.
- Melanomma pulvis-pyrus** Pers. Fackel. Reported by Chersman, 1941 from Elm Park, Winnipeg. Specimens not seen by the writers.
- Melanomma tuberculata** (Sacc.) F. L. & L. v. On old *Vitis vulpina*, Univ. Referred with doubt to *Melanomma tuberculata* on *Vitis*. The perithecia arise from a reddish brown suberous base and become bare, asci 150-160 \times 7-15 μ , clavate, 8-spored, spores 34-38 \times 8-10 μ , hyaline, 2-celled, each cell with 2 guttulae.
- Rosellinia lignaria** (Fr.) Nilsen & L. v. On branches of *Prunus* sp. and *Quercus macrocarpa*, Bird-Hill Univ. Perithecia small, briefly, asci 20-100 \times 10 μ , spores 10-15 \times 5-7 μ .
- **mammiformis** Pers. Sacc. On old *Cornus stolonifera*, *Salix*, and *Acer Negundo*, Univ., Man. & Nels. District Sask. Perithecia sometimes confluent, double-walled, spores 18-24 \times 6-8 μ , brown.
- **medullaria** (W. G. & Ces.) & de Not. On old *Fraxinus*, etc., Univ. Perithecia becoming smooth, asci c. 150 \times 10 μ , spores 20-25 \times 6-7 μ , brown.
- **parasitica** L. & L. v. On old *Populus* and *Symphoricarpos canadensis*, Univ. Perithecia sometimes flattened, spores 9-12 \times 5-6 μ .
- **pulveracea** (Ehrenb.) Fackel. On old *Populus tremuloides*, Univ., Man. and Saskatoon, Sask. Asci 80-110 \times 8-10 μ , anastomate, spores 10-12 \times 7-8 μ .
- **taubcompressa** F. L. & L. v. On deciduous wood Univ. Spores 6.8 \times 4.4 μ .
- Wallrothella Arceuthobii** (Fack.) Sacc. Common at Victoria Beach on the fruits of the abundant *Leucobaccharis americana* in *Prunus stolonifera*, also north of Edmonton, Alberta. Life history described and illustrated by Mus Dowd (121).
- Zignoella pulviscula** (Currey) Sacc. On *Populus* and on *Phlox stramonifera* on the same wood, Univ. Spores 20-25 \times 4 μ , hyaline, 4-celled, fusiform.
- sp. On old & imp. & leucobaccharis tree, Univ. Perithecia small about 2.0 μ high with a small beak, asci c. 100 \times 8 μ , 8-spored, 2-3-septate, spores oval or 2-4 μ , 7-10-celled, pointed at the ends. No description was found to fit this multi-septate *Zignoella*.

Ceratostomataceae

- Ceratostoma brevicastris** (Fr.) Sacc. On decayed wood of *Populus*, Univ. Perithecia partially immersed, smooth, spores uniseriate, overlapping, 14-16 \times 4 μ , pale brown.

Cuscutariaceae

- Cuscutaria Berberidis** (Pers.) R. F. Grev. Common on branches of *Berberis Thunbergii* and *B. vulgaris*, Univ. It may be somewhat parasitic on the stems. Spores moniform, brown, 24-32 \times 11-14 μ .
- **Caraganae** Karst. On branches of *Caragana arbuscula*, Univ. Asci 150-200 \times 12-17 μ , spores 20-27 \times 9-12 μ . This may be *C. elongata*.
- **elongata** (Fr.) Grev. Common on stems of *Amorpha fruticosa* (*C. Amorpha* (Wallr.) Fackel), associated with *Camptosporium Amorphae*, Univ., on stems of *Ceanothus* sp., Univ.,

of *Eilegmus argenteus* (*Cucurbitaria Caraganae* var. *Shepherdiae* Rehm. as in Breckin's Fung. Dakotenses, 305 and 477), Sours. Spores murdorn, brown, 20-31 \times 9-12 μ . See Weich (Mycologia, 18, 56).

Cucurbitaria staphulea Desmets in Manuscript. On galls on branches of *Populus balsamifera*, Beaver Creek Buchanan, Nanterry and Pike Lake Sask. Apparently a variety to the populus. Similar galls are found in Manitoba, but the *Cucurbitaria* has not been detected, see *Duchassa Populi*.

Othius Hypoxylon (Eh.) & Fv. *Sacc* (*O. hypoxylon* Eh. & Fv.) On old wood of *Acer Negundo*, etc., Univ. Spores brown, 2-celled, 10-14 \times 4-5 μ .

— **Symphoricarpi** Eh. & Fv. On twigs of *Symphoricarpos occidentalis*, Univ., det. Breckin (see Fungi Dakotenses, 95). Spores 20-25 \times 8-10 μ , hyaline at first.

Amphispheeriales

Amphispheeria talbomaculans (Sacc.) Cooke. On old decorticated branch of *Populus* Univ. Perithecia on nodes areas, spores 9-14 \times 4-5 μ , brown, 2-celled.

— **applanata** (Fr.) Ces. & de Not. Common on surface of bark of living *Quercus macrocarpa*, Univ. Spores unequally 2-celled, the upper cell being the larger (Sacc. Sp. page 9741) not the lower cell as stated by Cooke and by Felt. Petrak (Ann. Mycol. 2, 331) makes this species the type of his new genus *Kirschsteinella*.

— **basiphaeria** (Cooke & Ell.) Sacc. On bark of dead *Populus*, Univ. Spores 12-18 \times 6-8 μ , larger than given in N. A. Pyrenomyces, but like those in Fungi Canab. 18.8, on poplar.

— **maritima** Eh. & Fv. On branches of *Quercus bicolor* Victoria Beach. Asci spores 22-28 \times 5-10 μ , 2-celled, brown.

Teliospora clavipora Eh. & Fv. On dead branch of living *Negundo*, Univ. Spores murdorn, brown, clavate c. 33 \times 10 μ .

fulgurata Eh. & Fv. On decorticated branches of *Populus*, Univ. Spores 14-16 \times 6 μ , brown, with 3 or 4 cross-septa and finally 1 or 2 longitudinal-septa.

insecura (Ell.) Eh. & Fv. On twigs of *Salix* sp., Humboldt, Sask., spores brown, 20-26 \times 8-10 μ , with 3 to 5 cross-septa and usually one longitudinal-septum, a form perhaps belonging to this species on *Prunus virginiana*, Univ., spores 16-23 \times 8-11 μ .

magistera Eh. & Fv. On dead branches of *Salix*, Univ. Spores 31-44 \times 11-12 μ , with about 7 cross-septa and several longitudinal-septa.

obducens (Fr.) Fuekl. On bark or wood of *Populus* sp., *Quercus macrocarpa* and *Pinus strobus*, Lake of the Woods, Univ. Spores brown, 20-30 \times 8-12 μ , with about 7 cross-septa and several longitudinal-septa.

populina Eh. & Fv. On decorticated *Populus*, Univ. Spores brown, 12-18 \times 6 μ with about 3 cross-septa and 2 longitudinal. *T. pygmaea* Eh. & Fv. and *T. tenuis* Eh. & Fv. are similar or identical.

prunifera (Nyl.) Karst., or possibly a form of the preceding species. On branches of *Populus tremuloides*, Univ. Spores 15-20 \times 6-8 μ .

Lophotomatales

Lophotomum compressum (Pers.) Sacc. On twigs of *Populus*, Univ. Spores 20-28 \times 7-8 μ , murdorn, brown.

sp. On branches of *Symphoricarpos occidentalis* Indian Head, Sask. Perithecia on wood or remains of bark, asci spores 20-27 \times 10-12 μ , eccentrically with seven cross-walls and one or two longitudinal walls. A *Lophotomum* on *S. occidentalis* has been found also by Breckin.

Lophophæria pulveracea Sacc. On an old board (of *Pinus*?) in the woods, Univ. Spores 16-23 \times 5-7 μ , 2-celled, somewhat constricted at the septum.

Lophotoma Arundinis (Fr.) Ces. & de Not. On old stems of *Phragmites communis*, Lake Dauphin and Victoria Beach July. Spores golden-brown, rather fused, 23-32 \times 6-8 μ , mostly 5-celled.

— **erosum** Eh. & Fv. On dead branches of *Salix*, Elk Island and Univ. Perithecia numerous in the wood, spores smoky-hyaline then dark brown c. 25 \times 8 μ , about 6-celled.

— **prunorum** (Lanch.) Fuekl. On twigs of *Symphoricarpos occidentalis* Univ., det. Dr. Breckin. Spores 25-38 \times 5-6 μ , hyaline then brown, for a long time 1-septate but finally with 3-septa, pointed at the ends.

- Lophosotoma Prominens** Peck. On twigs of *Cornus stolonifera*, Univ. Spores c. $20 \times 5 \mu$, rather immature.
- quadrinucleatum** Karst. On branch of *Acer Negundo*, Univ. Spores $22-24 \times 7-8 \mu$.
- seminucleatum** Cooke. On branches of *Salix*, Univ. Spores $30-35 \times 8-9 \mu$, brown, about 6-celled.
- triapertatum** Peck. Very common on branches of *Acer Negundo*, *Freziera pennsylvanica*, *Populus* spp., *Salix* spp., *Symphoricarpos occidentalis*, *Vitis vulpina*, etc., Univ. and no doubt everywhere. The stogate perithecia are partially sunken in the wood, spores brown, usually 3-septate. $15-22 \times 4-7 \mu$. Perhaps the same as *L. quadrinucleatum*.
- **vestitum** Peck. On dead branch of *Populus*, Univ. Perithecia gregarious or even attached together; spores $34-42 \times 8-10 \mu$, hyaline becoming yellowish, 2-celled then 4-celled.

Mycosphaerellaceae

- Mycosphaerella chimaephila** (Sacc.) House (as *Sphaerella Chimaephila* Ell. & Ev.) On leaves of *Chamaephila umbellata* Victoria Beach July-Aug. Spots dark, small, orbicular, perithecia smooth, spores $10-12 \times 2\frac{1}{2}-3 \mu$. It seems possible that the two names given above may be synonyms.
- **Fragariae** (Tul.) Lindau. Conidia, stage only collected. See *Ramularia Tulcanetii*.
- † **Grossulariae** (Fr.) Lindau. See *Septoria Ribis*.
- † **Sarraceniae** (Schu.) Hough. The common spot on *Sarracenia purpurea* in eastern Man. may mature to this species. Only proconidia, with spores $3-5 \times 1 \mu$, have been found.
- **Thalicteri** (Fr. & L.) Lindau. On leaves of *Thalictrum discolor*, Cowan and Univ., Man., Maryland, Sask. The perithecia occur on white spots on living leaves, some maturing about August, spores $11-14 \times 4 \mu$, 2-celled.
- Pseudopeziza Trifolii** (Rostk.) Petrak. (*Sphaerium Trifolii* Rostk., *Pezizosphaerulina Trifolii* Pollack.) On leaves of *Medicago lupulina*, Brandon, Man., col. I. L. Connors, of *Trifolium hybridum*, Canora, Sask. See Nordal, Cornell Univ. Memoir, 130. Both collections show a few young asci on leaves of the current season.
- Sphaerella Astragalii** Curry, Cooke. On *Astragalus flexilis*, Long Point, Man., on Hudson's Bay, and Wm. Gibson June 29, 1932 (Can. Plant Disease Survey Rept. 1932 116, 1934). Spores seen at Ottawa and in the Dearborn herbarium. This and the following two species belong in *Mycosphaerella*, but have apparently not been transferred.
- Tignobelia Aconiti** On leaves of *Helleborus aconitifolius*, Munster, Sask. Perithecia $110-130 \mu$ in diameter, asc. numerous. $40-50 \times 10-12 \mu$, spores $12-15 \times 4-5 \mu$, hyaline, 2-celled, scarcely restricted. This fits fairly well the fungus described on *Deschampsia* (Ava) alpina in Greenland.
- **Pyrolae** Rostk. On leaves of *Pyrola* sp., Victoria Beach. Ascospores slightly immature, $10-11 \times 4 \mu$, 2-celled. This also is a Greenland fungus.

Pleosporaceae

- Carlsperma manitobensis** Desmiers & Hishy (71 72). On bark of dead twigs of *Lonicera canadensis* Birds Hill. Perithecia erumpent, membranous $170-190 \mu$, spores brown with a hyaline pointed tip at each end. $30-38 \times 5-7 \mu$ with a total of 6-8 cells.
- Didymella applanata** (Nesb.) Sacc. Occasional on stems of *Rubus idaeus* var. *strigosus* in Man. The spor-light of aspheries is not serious. The Phoma stage has been seen, but perithecia have not been sought. Koch (Phytopath. 21: 247 287) has shown that *Mycosphaerella rubra* (Peck) Jacc. is a synonym.
- **canadensis** Ell. & Ev. On dead limbs of *Populus* and *Salix*, Univ. Spores hyaline, $20-26 \times 8-10 \mu$, 2-celled.
- **lophospora** Sacc. & Spag. In bark of *Vitis vulpina*, Univ.
- **manitobensis** Desmiers & Hishy (71 73). On dead twigs of *Viburnum Opulus*, Univ. Perithecia in the cortex, asci $75-105 \times 7-10 \mu$, spores hyaline, 2-celled, fused and pointed, $30-42 \times 4-5 \mu$.
- Didymsellina theidia** (Desm.) v. Hohn. On overwintered leaves of *Iris* heavily infected with *Heterosporium* sp. Indian Head, Sask. Ascospores 2-celled, hyaline, $18-22 \times 6-8 \mu$. These spores are considerably smaller than described. They were somewhat immature. The fungus, however, may be *D. poecilospora* McWhorter (Phytopath. 27: 136).

- Didymophaeria decolorans** Rehm. On dead twigs of *Nymphoporus occidentalis*, Univ., det. Breckle, who considers it an *Amphophaeria*, and lists it as *d. decolorans* in *Mycologia*, 9: 277. Spores brown, $9-14 \times 4-6 \mu$.
- **diplospora** (Cooke) Rehm. On branches of *Cornus stolonifera*, Elm sp., and *L. ulma vulgaris*, Univ. Spores $9-12 \times 4-6 \mu$. A form on *Quercus macrocarpa* has spores $8-10 \times 5-6 \mu$.
- **epidermidis** (Fr.) Fucker. On twigs of *Laburnum Lentago* and *L. Opulus*, Univ. Spores $10-15 \times 4-6 \mu$.
- **manitobensis** Ell & Ev., N. A. Perromyces 732. On leaves of *Rubus idaeus* var. *acris*—*nanus* along the Mintoedon River, type collected by J. Dearness Oct. 3, 1893. The nearest known printed reference to a Manitoban fungus. Apparently only the type collection is known.
- Leptophaeria** *avanaria* G. F. Weber. On *Urtica ulmifolia*, together with *Nyctelia* *Arenae*, Brandon, Man. and Saskatoon, Sask., on old stubble of *Urtica ulmifolia*, last on Head, Sask.
- **Barbardiella** Hark. On twigs of *Hordeum vulgare*, Univ. Asci $70-80 \times 1.12 \mu$, spores $18-26 \times 5-6 \mu$, usually 4-celled brown. Reported also from Iowa (8-3-5).
- Phaeospora** Ell & Ev. On twigs of *Cornus stolonifera* and *Laburnum Opulus*, Univ.
- Cenothecium** Fucker & Sacc. Rarely seen on canes of *Rubus idaeus* var. *strigosus*, Univ. Man., Saskatoon, Sask.
- capitata** Ell & Ev. Common on *Rubus* along the Red River. Spores $26-34 \times 8-12 \mu$, brown, about 8-celled. A form with membranous perithecial walls is also found.
- culmicola** (Fr.) Hark. On old straw of *Urtica ulmifolia* etc., Univ. Man., Preeceville, Sask. Spores 6-celled, the third from the top swollen.
- **culmifraga** (Fr.) Let & de Not. On dead stems of *Bromus inermis*, Indian Head and Saskatoon, Sask. Ostiole prominent, asci $c. 100 \mu$ long, spores $2-35 \times 4-6 \mu$, 6-10-celled golden in color. The spores are rather short for this species.
- **Teulomerium** Auct. On dead herbaceous stem, Botens River. Spores $20-26 \times 4 \mu$, 4-celled, brown.
- **doliolum** (Pers.) de Not. Common on dead herbaceous stems, including *Aster*, *Cosmos* *ulmus*, *Dracopis*, *Dracopis* *perfoliatus*, *Hesperis* *annuus*, *Sonchus* *officinalis*, and *Urtica* *gracilis*, Univ., Man., on old *Hesperis* *annuus* and *Lactuca* *scariola*, Indian Head, Sask. Vaselets typically with yellowish-brown spores $20-30 \times 4-6 \mu$, 4-celled, slightly constricted at the septa.
- Immoedera** (Berk. & Curt.) Ell & Ev. On dead herbaceous stems, Univ. Perithecia erumpent, asci about $120 \times 15 \mu$, 8-spored, spores long, $40-60 \times 4 \mu$, commonly 9-celled and sometimes with the fourth cell swollen to 6μ wide, yellowish-brown.
- Trubana** Ell & Kellerm. On an old board in the woods, Birds Hill. Spores about $27 \times 6 \mu$, 6-8-celled.
- **pyrenopezizomoides** Sacc. & Speg. On dead stems of *Artemisia biennis*, Prud'homme, Sask., on dead herbaceous stems, Victoria Beach, apparently this species on old rotten wood, Birds Hill, Man. The perithecia become "pear-shaped" by not among spores $20-24 \times 4-6 \mu$, 4-celled sometimes with the second cell swollen. Perhaps only a form of *L. dolosum*.
- **rugosa** (Dearness & Fishy) (71-74) On dead stems of *Cornus stolonifera*, Univ. Perithecia in the cortex, erumpent, making the bark rugose, asc. $115-140 \times 11-12 \mu$, spores brown, 3-4-celled, constricted, $18-27 \times 6-9 \mu$.
- **subsonata** (Cooke & Peck) Sacc. On dead stem of *Sonchus officinalis*, Univ. Spores $c. 20 \times 6 \mu$. Perhaps only a form of *L. dolosum*.
- Metaphaeria** *anisometra* (Cooke & Hark.) Sacc. On twigs of *Laburnum pubescens*, and on decayed herbaceous stems, Univ. Spores $18-22 \times 5-6 \mu$, hyaline, 4-celled.
- **corvina** Ell & Hark. Common in the bark of *Corvula* sp., Univ. The fungus matures in early spring, asc. $100-150 \times 18-27 \mu$, spores $28-34 \times 10-12 \mu$, 4-celled.
- **cornuta** (Sacc. & Speg.) Sacc. On dead canes, Univ. Asci $60-75 \times 9-10 \mu$, spores $22-24 \times 4-5 \mu$, 3-4-celled. *M. cornuta* (Berk. & Curt.) Sacc. may be the same.
- **Desmazieri** Hubak. Common on living leaves of *Smilax herbacea*, Univ. Spores pale, border reddish, perithecia pyriform, spores $15-24 \times 3-4 \mu$, about 4-celled.
- **Thyalasporea** Sacc. On old straw of *Triticum*, Univ. Spores $28-30 \times 3-4 \mu$, 7-8-celled, sometimes with the third cell swollen. The spores become pale brownish and the fungus should probably be called *Leptophaeria thyalasporea* Sacc. as is done in Oudemans' *Enumerat. Syst. Fungorum*, or it may be one of the several other species described on grasses.

- Metasphaeria holostegi** (Ell.) Sacc. On dead branches of *Pyrus borealis*, *Ribes floridum*, Rose sp. and *Nubus storus*, Univ. Spores 14-21 \times 5-7 μ , usually 4-celled.
- **Polygoni sagittati** (Schw.) Ell. & Ev. On old stems of *Polygonum*, Univ. Spores up to 18 μ long, becoming 4-celled.
- **quercus** Peck & Babey (71-74). On dead branches of *Quercus macrocarpa*, Univ. Perithecia carbonous, immersed in cortex, or almost superficial if on the bare wood, asci 90-130 \times 12-15 μ , spores 24-30 \times 6-8 μ , hyaline to pale amber, 5-6-celled.
- sp. On twigs of *Symphoricarpos occidentalis* Univ. Spores 25-33 \times 4 μ ; at first 2-celled, becoming 4-celled. Dr. Welmeyer writes that it seems close to *M. Arabidis* Johans.
- Ophiobolus acuminatus** (Bowerby) Duby. On dead stems of *Artemisia biennis*, Indian Head, Sask., on *Castilleja coccinea*, Roblin, Man. Spores 75-105 \times 2-4 μ , brown, 10-18-celled, sometimes with one cell near the centre swollen.
- angulilobus** (Cooke) Sacc. On old stems of *Heracleum lanatum*, Univ. Spores 100-120 \times 3-4 μ , pale brown, often much curved and bearing a swollen cell at one end.
- **filiporus** Cooke & Ell. Sacc. On old stems of *Grindelia squarrosa*, Ste. Anne. Perithecia rustlike, about 60 μ wide, asci cylindrical, 85-105 \times 4-5 μ , 8-spored; spores nearly as long as the ascus, less than 1 μ thick.
- **fulgidus** (Cooke & Peck) Sacc. Common on dead herbaceous stems of *Aster*, *Erigeron*, *Solidago*, Univ., Brandon, Man., on *Artemisia biennis*, Canora, Sask. The fungus matures about July on stems of the preceding year. Spores yellowish-brown, 65-100 \times 3-5 μ , multiseptate.
- **graminis** Sacc. Common on *Triticum aestivum* in Sask., not so common in Man., also found as follows in Sask. on *Hordeum jubatum*, Rama, *H. vulgare*, Assiniboia, Lake Lenore, *Hordeum adansoni* St. Gregor. The first Canadian record of this fungus is by Fraser (23), who found it in northern Sask. in 1923 on *Triticum aestivum*. It has since been studied extensively by Russell (34-38). It is a true smut parasite of wheat in many parts of Saskatchewan, especially for the first few years after the virgin prairie is broken. It is not prevalent in older fields where crop rotation is practiced. Russell reports the following hosts susceptible when artificially inoculated: *Agropyron distachyon*, *A. repens*, *A. Richardsonii*, *A. Smithii*, *A. tenerum*, *Binaria ciliata*, *B. cernua*, *B. longilumina*, *B. Porteri*, *B. Pseudomonas*, *Calamagrostis* sp., *Deschampsia cespitosa*, *Elymus canadensis*, *E. inaequalis*, *Hierochloa odorata*, *Hordeum jubatum*, *Poa triverna*, *Scleractis purpurascens* (*Melica striata*) and *Scilla cernua*.
- **porphyrogenus** (Tode) Sacc. On dead stems of *Cynodon dactylon* and *Melilotus*, Univ. Spores 90-125 \times 1-2 μ .
- **trichosporus** Ell. & Ev. On straw of some cereal, Univ. Spores very narrow, 60-100 or longer \times 1-1 μ .
- Phomatosporea Rosae** Helm. On stems of *Rosa* sp., St. Norbert, of *R. blanda*, Univ. Asci-spores hyaline, unsculptate, 15-18 \times 8-9 μ . Type collected in North Dakota (see Brinkley, Fungi Dakotenses, 284).
- Physalospora aurantia** Ell. & Ev. On leaves of *Asparagus odouratus*, Dubuc, Sask., of *A. pensilvanicus*, Buxton, Durn, Lipton and Saskatoon, Sask. of *A. pectinatus*, Sutherland Sask.
- **magnatoma** (Peck) Sacc. On living leaves of *Asparagus vulgaris* Brandon, Man., of *A. bulbosus*, Yorda, Sask. Spores in the Man. collection 18-20 \times 8-10 μ , as in *P. aurantia*, but on living, unblackened leaves.
- Pileospora Harknessii** Berl. & Vogl. (*Lepiothecaria straminea* Cooke & Hark.) On dead stems of *Binaria straminea* Saskatoon, Sask. Asci c. 75 μ long, spores 6-celled, with longitudinal septa finally dividing one or two central cells.
- **herbarum** (Pers.) Rabenh. On dead branches of *Salix*, Univ. Spores brown moniform, 25-42 \times 8-18 μ . Reported as "common everywhere from Greenland to Mexico" (N. A. Pyrenomyces) but not found to be common in Man.
- megalothea** Tracy & Earle. On dead leaves of the current season of *Achillea millefolium*, Pilot Mound, det. C. Chupp. Accompanied by the *Alternaria* stage.
- pustulans** Ell. & Ev. On stems of *Cornus stolonifera*, Univ., probably this species on branches of *Amelanchier alnifolia*, St. Norbert. Spores 19-25 \times 9-11 μ , with 5-7 cross septa and 2-3 longitudinal septa.

- Pyrenophora Brevii** (Diedicke) Drechsler On dead overwintered leaves and stems of *Breweria* *marima*, Univ. Man., Assiniboia, Sask. The Sask. specimens immature; the Man. specimens with bristly perithecia bearing brown ascospores $62-75 \times 24-26 \mu$, with 3 cross septa and 6-2 longitudinal septa. See *Helminthosporium Brevii*.
- **calvescens** (Fr.) Sacc. Recorded with doubt on dead stems of *Maidenium*; Univ.
- **rugosa** Dearness & Bisby (71-75) On an old stove of a barrel in the woods, Univ. Spores $24-35 \times 11-15 \mu$, constricted near the middle, with 5-7 cross septa and longitudinal septa across most of the cell.
- **trichostoma** (Fr.) Sacc. On stubble of *Triticum aestivum*, Melfort, Sask.
- **Tritici-repentis** (Diedicke) Drechsler Perithecia of *Helminthosporium Tritici-repentis* were collected on *Triticum aestivum* by J. E. MacIntosh at Assiniboia, Sask., and by P. M. Summers at Indian Head, Sask.
- Venturia compacta** Peck On leaves of *Vaccinium canadense*, Norway House, Man., Crooked River, Sask. Both specimens immature.
- **Dickelii** (Berk & Broome) Ces. & de Not. On leaves of *Linnaea borealis* var. *umescens*, Berens River, Minn., Victoria Beach. Mature ascospores $12-16 \times 4 \mu$, brown, 2-celled, somewhat constricted.
- **Caultheriae** Ell. & Ev. On leaves of *Gaultheria procumbens*, Minn. Spores 2-celled, $10-11 \times 2.5-3 \mu$, hardly mature.
- **inaequalis** (Cooke) Wint. See *Funclotium dendriticum*.
- putchella** Cooke & Peck On leaves of *Chamaenerion polycaule*, Ingolf, Kenora, and near Norway House. Spores $12-14 \times 3-4 \mu$.

Masseeaceae

- Masseea conopsea** (Walt.) Sacc. On dead branches of *Prunus* sp., Univ. Spores large, $70-85 \times 14-18 \mu$, 4-celled, brown. Perhaps should be referred to *M. ingens* (Tode) Fr.
- **plumigera** Ell. & Ev. var. **tetraspera** Dearness & Hodar On branches of *Viburnum Opulus*, Univ. Assn. 4-spored, spores $66-80 \times 14-18 \mu$, 4-celled, hyaline, sometimes becoming brownish.
- **Pyri** Oth. On branches of *Amelanchier alnifolia*, Univ., Man. and Saskatoon, Sask. Ascospores $62-75 \times 11-16 \mu$, 4-celled, brown, with 4-6 large guttulae. It does not seem possible to separate these collections into *M. Pyri* and *M. similis*.
- Masseeella Curreyi** (Tul.) Sacc. Common on branches of *Tilia americana*, Univ. The ascospores are $36-46 \times 14-16 \mu$, each with one large and one small cell, brown, surrounded by a gelatinous envelope which swells in water. *Sphaeropsis oleosa* (Fr.) is found associated.
- Pleomassaria aliparia** (Berk. & Br.) Sacc. Uncertain specimens on *Amarpha fruticosa*; Univ. Spores $35-50 \times 12-20 \mu$, muriform.

Gnomoniaceae

- Gnomonia ulvae** (Schw.) Thüni Common on leaves of *Ulmus americana*, Univ., Man. and Indian Head, Sask., sometimes injurious. The mature ascospores on fallen leaves in the spring have not been sought.
- Gnomoniella Coryli** (Batsch) Sacc. Common on leaves of *Corylus americana* in Man., and on *C. rostrata* in Man. and Sask.
- **Coryli** var. **circinata** Dearness & Bisby The circinate form on smaller spots on *Corylus rostrata* is not common, Univ. eastward.

Valsaceae

- Anthostoma radatum** (Cooke & Peck) Sacc. On dead twigs, Univ.
- melanotae** (Berk & Broome) Sacc. var. **Symphoricarpi** Brenckin. On dead twigs of *Symphoricarpos occidentalis*, Univ., March, det. Brenckin (see also Fungi Dakotenses, 626). $12-10 \times 4-6 \mu$.
- **macrosporum** Karst. or possibly *A. crudum* Peck. On old deciduous wood, Univ. Spores $6-7 \times 3 \mu$, exuding on the ostiole.
- Anthostomella ipholidigana** (Ell.) Ell. & Ev. On twigs of *Thuja occidentalis*; West Hawk Lake. Spores $9-11 \times 4 \mu$, brown, uniseriate.

- Cryptosphaeria fuscolola** (Cooke & Ell.) Sacc. On branch of *Amelanchier alnifolia*, Univ. Aca 7-10 μ wide; spores 8-10 \times 1-2 μ .
- **papillina** (Pers.) Sacc. In bark of dried branches of *Populus tremuloides*, Univ., Man., Indian Head and Saskatoon, Sask. Aca \approx 50 \times 8 μ ; spores 8-10 \times 2 μ .
- Diaporthe albocarinata** Ell. & Ev. Fairly common on *Cornus alnifolia*, Univ. Det. L. E. Wehmeyer, who points out in his book on *Diaporthe* (17) that the fungus is a *Leptosphaeria*.
- **Amorphae** Ell. & Ev. On dead *Amorpha fruticosa*, Univ.; det. L. E. Wehmeyer.
- **Crataegi** (Currey) Nitschke. On branches of *Crataegus chrysantha*, Indian Head, Sask., coll. B. J. Sellars, det. L. E. Wehmeyer. Spores \approx 6-18 \times 5 μ , constricted. Dr. Wehmeyer writes that this is the first American collection known to him.
- **cruci** Nitschke. On branches of *Cornus alnifolia*, Univ. Probably present also on several other hosts.
- **Pruni** Ell. & Ev. On branches of *Prunus nigra*, Univ. 12-15 \times 3-4 μ .
- **talicola** (Fr.) Sacc. On twigs of *Quercus macrocarpa*, Univ. June. Aca 8-septate uniseriate, 175-200 \times 15 μ ; spores 22-24 \times 10-12 μ , with a cylindrical hyaline appendage at each end, and 2 or 3 lateral appendages somewhat longer than the terminal. This is the first known American collection of this species. Wehmeyer (17) states that it is "apparently confined to Europe." The spores are exactly as illustrated by Wehmeyer pl. XII, fig. 5, and the determination has been verified by him.
- **tascelia** (Pers. Rehm) Sacc. On twigs or branches of *Salix* spp., Univ., Man., Proulxville, Sask. (conspicuous because of the wart-like ectostromata, spores 45-55 \times 8-10 μ , constricted at the septum, sometimes with a short hyaline appendage at each end).
- **tuberculosa** (Fr.) Sacc. On twigs of *Amelanchier alnifolia*, Univ., April. 14-16 \times 6-8 μ .
- Viburnum Dearnessii** & Huby (71-76, see also Wehmeyer, 17 (23)). Type collected on *Viburnum Lentago*, Univ. Apr. 19, 1926; several other collections also on this host and *Y. Opulus*, Univ. Known also from Iowa and New Jersey.
- Eutypa Acharii** Tul. Rather common on branches of *Populus* and *Salix*, Univ. The wood is blackened by effuse stromata, spores 6-8 \times 1 $\frac{1}{2}$ μ .
- favoviridescens** (Hoff.) Tul. On an old stave of a barrel in the woods, Univ., May. Stromata green within, spores 6-8 \times 1-1 $\frac{1}{2}$ μ .
- lata** (Pers.) Tul. On bark or wood of *Populus tremuloides* and *Salix* Univ., Man., Indian Head, Sask. Produces extensive fruiting areas in the bark, sometimes on the wood, spores 7-12 \times 2 μ .
- ludibunda** Sacc. On bark of *Pyrus borealis*, Univ. Ostioles sulcate, spores 8-11 \times 2 $\frac{1}{2}$ -3 μ , pale greenish. Perhaps this species also on *Acer Negundo*.
- melilaria** (Fr.) Sacc. On bare wood of *Viburnum Lentago*, Univ. Spores nearly hyaline, 7-9 \times 1 $\frac{1}{2}$ μ .
- Eutypella fungulosa** Nitschke) Sacc. On fallen branch of deciduous wood. Remota. 6-8 \times 2 μ .
- constricta** (Fr.) Sacc. On leaves of *Amorpha fruticosa*, Kenora, V. man. 6-9 \times 1 $\frac{1}{2}$ μ .
- Vitis** (Schw.) Ell. & Ev. On branches of *Fraxinus pennsylvanica*, Univ. 10-14 \times 2-3 μ .
- Fenestella amorpha** Ell. & Ev. On hyphae of *Quercus macrocarpa*, Univ. Aca 135-150 \times 12-15 μ , 4-septate, spores 23-28 \times 10-12 μ , brown, with about 7 cross septa and a longitudinal septum in each division.
- phaeospora** Sacc. On branches of *Acer Argentea*, *Crataegus*, and *Populus*, Univ. Spores 35-42 \times 14-20 μ , muriform.
- princeps** Tul. On branches of *Quercus macrocarpa*, Univ. Spores 30-40 \times 14-20 μ , multi-septate and muriform. Often with a hyaline appendage from one or both ends of the spore.
- Thyridium Tarnabulum** (Cooke & Ell.) Sacc. On branches of *Fraxinus americana*, Univ.
- **antiquum** (Ell. & Ev.) Sacc. On twigs of *Ribes floridum*, Univ. Spores 12-20 \times 6-8 μ , brown, with 3-4 cross septa and 1 or 2 longitudinal septa.
- **canadense** Ell. & Ev. On old branches of *Crataegus*, Univ. Fits the description of *T. canadense*, except that the spores become brown.
- Valsa ambigua** (Pers.) Fr. Very common on branches of *Aldus incana*, *Celastrus scandens*, *Cornus alnifolia*, *Corylus* sp., *Cytisaster* sp., *Crataegus* sp., *Eleagnus argentea*, *Fraxinus pennsylvanica*, *Prunus nigra*, *Pyrus borealis*, *Quercus macrocarpa*, *Rosa* sp., *Salix* spp., *Tamarix* sp., *Ulmus americana*, *Viburnum Opulus*, Brandon, Univ., Victoria Beach, Man., on *Prunus*

Betula, *Rosa* sp. and *Ulmus* sp. in Sask. Spores variable on different hosts, large for a *Valsa*, 14-25 \times 3-5 μ , in asci with 8 spores, 4-spored asci with larger spores common.

***Valsa borealis* Harkn.** On branches of *Salix*, Univ. Spores $c. 10 \times 2 \mu$.

— *cinerea* Fr. On twigs of *Prunus* sp., Univ. 14-18 \times 3-4 μ .

— *coriaria* Peck. On branches of *Cornus canadensis*, Saskatoon, Sask., of *C. rotundifolia*, Univ., Man. Ascomorphs 14-19 \times 3-4 μ , no associated Cytophthora has spores $c. 6 \times 2 \mu$.

— *coronata* (Hoff.) Fr. On twigs of *Cornus rotundifolia*, Univ. Spores small 6-8 \times 1-1½ μ .

— *fraxinea* Peck. In bark of branches of *Fraxinus pennsylvanica*, Univ. Ascomorphs 12-19 \times 3-5 μ , associated Cytophthora with spores 4-6 \times 1 μ .

***leucostoma* (Pers.) Fr.** Common and sometimes apparently gregarious on branches of *Acer glabrum*, *alnifolia*, *Canadense* sp., *Crataegus* sp., *Prunus* spp., *Pyrus* sp., Univ. and Morden, Man., on *Prunus* spp., Saskatoon, Sask. 9-14 \times 2-3 μ .

***flucostrumoides* Peck.** On branches of *Corylus* sp., Univ. As described, except that the spores are only 10-12 \times 2 μ .

***Menispermii* Fil. & Holw.** On old stamens of *Menispermum canadense*, Univ. Immature the Cytophthora stage with spores 5-7 \times 1-1½ μ .

***nigra* (Hoffm.) Fr.** Common on branches of *Populus tremuloides*, Univ. and Victoria Beach, Man., in *P. balsamifera*, Ind. on Hout. Sask. The white stromata become conspicuous in the bark, long branches sometimes bearing the fungus from end to end, spores mostly 7-9 \times 1½ μ . One collection has 4-spored asci with spores 14-18 \times 3-4 μ .

— *pallida* Fil. & Fr. On branches of a cultivated *Salix*, Univ. An associated Cytophthora has spores 5-7 \times 1½ μ .

— *salicina* (Pers.) Fr. On branches of *Salix*, Univ.

— *Symphoricarpi* Rehm. On branches of *Symphoricarpos occidentalis*, Univ., determination verified by Dr. Herndle who collected the type in North Dakota (see Fungi Dakotenses, 189). Spores 12-19 \times 3½-4½ μ .

— *translucens* de Not. On twigs of *Salix*, Univ. Man. and Saskatoon, Sask. 10-15 \times 2 μ .

***Valsa Laschii* (Nitschke) Kunt.** On branches of *Prunus pennsylv.*, Univ. Asci with 16-24 spores, spores 8-12 \times 2-3 μ . A Cytophthora stage present (Mycologia, 18, 253) has spores 4-6 \times 1 μ .

Metastomatiaceae

***Cryptospora kansensis* Fr. & Fr.** On twigs of *Symphoricarpos occidentalis*, Univ. This species has been called *Carreriella Symphoricarpi* (Rehm) Petrak and distributed by Breckie (Fungi Dakotenses 348). The spores are hyaline or nearly so, 17-25 \times 8-10 μ , 2-celled sometimes becoming 4-celled.

***Cryptosporella anomala* (Peck) Sacc.** On living stems of *Corylus* sp., Univ. Asci $c. 45 \times 15 \mu$, spores 8-12 \times 4-6 μ . Sometimes gregarious to bases bushes.

— *Lentiginis* (Fil. & Fr.) Rehm. On twigs of *Viburnum Lentigin*, Univ. 9-12 \times 1-2 μ .

***Melanconia decorans* Fil.** On branches of *Betula alba* var. *papyrifera*, Victoria Beach, June. Associated with *Melanconium parvulum*, etc. The ascomorphs are 18-22 \times 8-10 μ , 2-celled, hyaline, but presumably they turn brown.

— *marginalis* (Peck) Wehmeyer. On branches of *Alnus incana*, Berens River and West Hawk Lake. Spores 14-18 \times 5-7 μ , 2-celled, hyaline.

— *occulta* (Purcell) Sacc. On branch of *Populus tremuloides*, Univ. Perithecia submerged in the bark, asci 125-150 \times 40-50 μ , spores 40-48 \times 16-18 μ , 2-celled, with a glutinous sheath.

— *thelebole* (Fr.) Kunt. On branches of *Alnus incana*, Berens River. Spores with an appendage at each end when young, finally unappendaged, 2-celled, 32-52 \times 7-1 μ .

***Valsa mistiva* (Tode) Cooke & de Not.** On branches of *Quercus macrocarpa* and *Populus* sp., Univ. Spores 16-22 \times 9-11 μ , brown, 2-celled.

— *moroides* (Cooke & Peck) Sacc. On branch of *Alnus incana*, Norway House. Spores 10-14 \times 3-4 μ , brown.

Diatrypaeae

***Diatrypa albopruinosa* (Schw.) Cooke.** Very common on branches of *Corylus* spp., occasional on *Crataegus* sp. and *Prunus virginiana*, along the Red River in Man., on *Corylus rostrata*, Saskatoon, Sask. Spores brownish allanoid, 11-16 \times 3-4 μ .

- Diatrype albobrunnea** var. **salicina** Rehm. On branches of *Salix* sp., Univ. See Fungi Dakotenses, 100, for a specimen from North Dakota.
- **asterostoma** Berk. & Curt. On fallen deciduous branches (*Viburnum*, etc.), Univ. Stromata white within, outside stellately cleft, spores $7.9 \times 2\frac{1}{2} \mu$.
- **tubulata** (Hoffm.) Fr. On old wood of *Populus*, Univ. $7.10 \times 3 \mu$.
- **calustri** Dearness & Bosby (f. 78). On dead stems of *Cladostema scandens*; Univ. Spores mostly $11-13 \times 2\frac{1}{2}-3 \mu$, yellow-brown.
- **hochstaegei** Ell. & Ev. On old *Acer Negundo*, *Ulmus americana* etc., Univ. Stromata conspicuous, spores $8-12 \times 2-3 \mu$, greenish.
- stigma** (Hoffm.) Fr. Very common on branches of *Amandacher alnifolia*, *Betula alba* var. *papyrifera*, *Crataegus* sp., *Prunus* sp. *Prunus borealis*, *Quercus macrocarpa*, *Rosa* sp. *Salix* sp., Norway House southward in Man., on *Prunus melanocarpa* in Sask. Perhaps a composite species. One striking variation is in the occurrence of stromata outgrowths which push up the dead bark above the fungus, this variation is usually found on oak, sometimes on apple. The spores are mostly $7-10 \times 1-2 \mu$.
- tristicha** de Not. On dead stems of *Rosa*; Univ. $15-19 \times 4 \mu$.
- tumida** Kl. & Ev. On branches of *Asieris fruticosa*, Univ. agrees with Fungi Columbiana, 1240, on *A. fruticosa*. $9-12 \times 3 \mu$.
- Diatrype decorata** Nitschke. Common on branches of *Betula alba* var. *papyrifera*, Norway House, Univ. matured. The white bark is decorated by the black crumpled stromata, also polysporous, spores $4-6 \times 1 \mu$.
- **diacorda** Cooke & Peck. On branches of *Viburnum Opulus*, Univ. Asci 100-120 \times 11-13 μ , polysporous, spores $5-6 \times 1-1\frac{1}{2} \mu$.
- **frostii** Peck, probably. On branches of *Corylus* sp., Univ.
- **irregularis** Cooke & Ell. On branches of *Pyrus borealis*, Univ. Spores $7-8 \times 1-1\frac{1}{2} \mu$ and also with long stipes.
- **missouriensis** Ell. & Ev. Common on branches of *Corylus*, Univ. $5-8 \times 1-1\frac{1}{2} \mu$.
- **placenta** Rehm. On branch of *Alnus incana*, Berens River. Compared with a specimen determined by Rehm. Spores $3-4 \times 1-1\frac{1}{2} \mu$.
- **quercina** (Pers.) Nitschke. On branches of *Amandacher alnifolia* and *Crataegus* sp., Univ. $7-11 \times 1\frac{1}{2}-2 \mu$.
- **verruciformis** (Ehrenb.) Nitschke. On branches of *Prunus virginiana*, Univ. $6-8 \times 1\frac{1}{2} \mu$.

Metagranulatae

- Betriosphaeria fuliginosa** (Mong. & Nest.) Ell. & Ev. (sensu Ell. & Ev. N. A. Pyrenomyces 546.) On dead branches of *Prunus pennsylvanica*, *Prunus* sp. and *Fats vulgaris*, Univ.

Xylariaceae

- Daldinia concentrica** (Bolt.) Ces. & de Not. Common on *Alnus incana* and other deciduous branches, Berens River to Univ. Stromata purplish-black to brownish, spores mostly $12-14 \times 6-7 \mu$.
- grandis** Child. On *Populus* and *Pyrus*, Swan River, Univ. Stromata often very large, dull black, spores mostly $1-1.3 \times 7-8 \mu$. See Ann. Missouri Bot. Gard. 19: 458.
- occidentalis** Child. On *Betula* sp., Fish Lake and Saskatoon, Sask. Stromata bronze-black, spores mostly $12-13 \times 8-9 \mu$.
- Hypoxylon fuscum** (Pers.) Fr. Common on *Alnus incana*, *Amandacher alnifolia*, *Corylus* sp., *Viburnum Opulus*, etc., Clear Lake, along the Red River, to Norway House, Man., and eastward, Kelowna, Sask.
- **howeanum** Peck. On bark of *Populus*, etc., Kenora, Univ.
- Moraea** Berk. & Curt. On *Alnus incana*, *Pyrus borealis*, and other deciduous wood, across Manitoba.
- **multiformis** Fr. Common on *Betula alba* var. *papyrifera*, Norway House to Victoria Beach.
- **pruinatum** (Klettsch.) Cooke. Abundant on trunks and branches of *Populus tremuloides*; across Man. and in the "Park belt" of Sask. It girdles and kills trees of all ages, particularly those more exposed at the edges of the "poplar belts", in smaller groups of trees ten per cent may be affected. The fungus finally produces its stromata on the diseased areas; these are pruinose until old.

- Hypoxylen rubiginosum** (Pers.) Fr. Common on dead *Populus*, *Tilia* and other deciduous wood along the Red River. The effused stromata pass through several bright shades of red and purple before maturing.
- **serpens** (Pers.) Fr. On *Populus*, etc., Univ. Effused over wood or stumps.
- Nummularia repanda** (Fr.) Nitschke. Rather common on branches of *Ulmus americana*, Univ. $10-13 \times 4-6 \mu$.
- Xylaria facuta** Peck. On decayed *Salix*, etc., Glanville. Apex acute, sterile; spores $15-20 \times 4-6 \mu$.
- **cornu-damae** (Schw.) Berk. Common on decaying wood in coniferous areas in Manitoba. Stromata commonly branched, spores $15-22 \times 4-6 \mu$.
- **Hypoxylen** (L.) Grev. On deciduous wood, Univ.

LABOULBENIALES

- Laboulbenia flagellata** Peyritsch. On *Elaphrus* sp., Beulah, Man.; Boche Perot, Sask.; det. Thaxter from specimens found by H. J. Brodie on an insect collection by J. B. Wallis.
- **Gyrindarium** Thaxter. On elytra of *Gyrinus lugens*, Winnipeg. Collections and determination as above.

BASIDIOMYCETES

SPOROBOLOMYCETALES

- Bullera alba** (W. F. Hanna) Derr. (*Sporobolomyces albus* Hanna, ?) 80. Type isolated from rusted straw of wheat and oats; Univ. The colonies are white to yellowish. Derr. (Ann. Myc. 28: 19) erected the genus *Bullera* in recognition of the studies of A. H. R. Buller on *Sporobolomyces* (82, vol. V).
- Sporobolomyces roseus** Kuyver & van Nieuwenhuis. From straw of cereals, Univ.; from a leaf of *Nymphoides odorata*, Kenora; isolations by W. F. Hanna. The colonies are pink. This and the following species are discussed and illustrated fully by Buller (82, vol. V).
- **salmonicolor** Kuyver & van Nieuwenhuis. Found by Dr. Hanna as a contamination in laboratory cultures at the Dominion Rust Research Laboratory, Winnipeg.

USTILAGINALES

- Contraxia Caricis** (Pers.) Magn. On *Carex heterodes*, Nasby, Sask.; *C. gynacensis* Macdonnell, Sask.; *C. minima* Lake Waskesiu, Sask.; *C. lechopilla* and *C. obtusata*, Saskatoon, Sask.; *C. endotricha*, Lake Waskesiu, McKague and Prince Albert, Sask.; on *C. laquearia*, Norway House, Man., and on several unidentified species of *Carex* in Man., including one at Mile 412 on the Hudson's Bay Railway.
- **externa** (Griffiths) G. P. Clinton. On *Carex flacca*, Frud'homme, Saskatoon and Sutherland, Sask.
- **subinclusa** (Korn.) Magn. On *Carex lasiocarpa*, Saskatoon, Sask.; on *Carex* sp., Univ., Man.
- Doassansia Alismatis** (Nees) Cornu. On leaves of *Alisma Plantago-aquatica*, Dauphin, Poplar Point, Univ.
- **deformans** Setchell. On stems of *Sagittaria latifolia*, Univ. Transferred to *Doassansiope* by Diete.
- furva** J. J. Davis. On leaves of *Sagittaria latifolia*, Univ.; verified by Drs. Clinton and Zander.
- intermedia** Setchell. On leaves of *Sagittaria latifolia*, Norway House and Victoria Beach, Man.; on *S. arifolia*, Pike Lake, Sask.
- Martensoffiana** (Thüm.) Schroet. On leaves of *Potamogeton heterophyllus*, Berens River, of *P. proles*, Norway House.
- ranunculina** J. J. Davis. On leaves of *Ranunculus delphinifolius*, Birds Hill. Immature on July 1 but mature Aug. 11, 1927. This species is rarely found.
- **Sagittariae** (Westend.) Fock. On leaves of *Sagittaria* sp., Berens River, of *S. latifolia*, Clear Lake and Poplar Point, Man.; on *S. arifolia*, Beaver Creek, Sask.
- Entyria Achilleae** Magn. On leaves of *Achillea millefolium*, Univ., apparently also at Minaka and Norway House. Easily overlooked on the leaves.
- **australe** Speg. On leaves of *Physalis flaccidula*, Melbourne, Man.; fairly common on *Solanum triflorum* in Man. and Sask.
- **Compositarum** Farl. On leaves of *Ambrosia trifida*; Morris, of *Aster flammula*; Barton.

- Entyloma Moniliforme** Farl. & Tril. (common on leaves of *Monilopermium canadense*, Univ. Hanna (190) finds the basidiospores (secondary conidia) to be uniloculate, and forcibly discharged (see Buller, 82, vol. V 211).
- **Nymphaea** (L.) D. (unbrough) Setchell. Rare on leaves of *Nymphaea adonis*, Arcetatin. Considerable search for this fungus has been made but it has been found but once, and isolated and studied in culture on agar by W. P. Hanna.
- **polysporum** (Peck) Farl. On leaves of *Gaultheria arctica*, Linn., V. Eden.
- **Ranunculi** Don Schroet. On leaves of *Ranunculus Macleanii*, Berens River, Victoria Beach.
- **Thalictri** Schroet. On leaves of *Thalictrum flavum*, Dauphin, Rivin. Linn.
- Graphula Phoenicea** (Mong.) Post. On *Phoenix americana* in greenhouses, Saskatoon, Sask.
- Soroporum Pansci-milliae** (Pers.) Takah. Oenogonium on *Panicum vulgare* wherever grown in Man. or Sask.
- Sphaerotheca occidentalis** (Rehm.) G. P. Clinton. On *Indropogon furcata*, Binacuth and Orisk.
- Sorghil** (Linn.) G. P. Clinton. On *Holcus Sorghum*, Linn., Man. and Saskatoon, Sask.
- Tilletia caries** (K.) Tul. (T. *tritici* (Hark.) Wint.) On *Triticum aestivum* and *T. durum*, throughout areas where wheat is grown. This species was found by Hanna and Popp (201) to constitute more than 90% of the smut of durum wheat in Man. and Sask. and to be more common than *T. foeta* on *Triticum aestivum* in the northern parts of these provinces. The annual Reports of the Canadian Plant Disease Survey give data on the prevalence of these and other plant diseases. Spores and conidia of the dry spores has occasionally caused destruction of threshing machines, more particularly a few years ago when wooden machines were generally used. The diseased kernels contain an average of up to 2,000,000 spores (Buller 82, vol. I 84). The recent loss of the basidiospores (secondary conidia) was reported by Buller and Vanterpool in 1925 (83) and three authors have described and illustrated this species (82, vol. V). Hanna (190) has studied the physiology of this species and of *T. foeta*, and has made crosses between them. (See also 51 and 197 206).
- **laeta** (L.) (T. *foeta*) Berk. & Curt. Tril. On *Triticum aestivum*, much less common on *T. durum* in Man. & Sask. Hanna (204) isolated trimethylamine from the spores.
- Truncus Laminas** Setch. Syd. On leaves of *Spiraea polytrichus*, Winnipeg.
- Uromyces Agropyri** Pers. Schroet. On leaves of *Elymus*, probably *E. canadensis*, Brandon, W. P. Fraser, 1917. Caused some injury to the grass.
- **Anemones** (Pers.) Wint. n. Halenb. On *Anemone patens* var. *Hoffmanniana*, Brandon to Morden, Man., Greenfield and Wadena, Sask.
- **Capulae** Frost. On *Ailanthus* (Linn.) Wauwag and vicinity. It was found in 1922, then in 1924 and 1925, and it is now causing some injury to ornamentals, but it has not become serious, and no treatment of seed or bulbs has been found necessary by the growers.
- Flachens horn**. On leaves of *Carex stricta*, Dauphin, W. P. Fraser, July 15, 1918, det. H. S. Jackson.
- Gladiali** (Requien) W. G. Smith. On cultivated *Gladialis* sp. *Leveria*, Sask. Apparently not previously reported from America. It was no doubt introduced with a corm from Europe.
- graminis** (L.) P. Clinton. On *Nepeta cataracta*, Saskatoon and Sutherland, Sask. Type collected in Idaho.
- occulta** (Wallr.) Rabenh. Occasional on *Sesue erecta* in southern Man., found also at Baurcarre, District Fairlight, Indian Head, Lipton and Mortlach, Sask. It is seldom prevalent enough to necessitate treatment of grain.
- **Waldsteiniae** Peck. On *Grass vulgare*, Indian Head and Saskatoon, Sask.
- Ustilago anomala** J. Kunze. On *Polygonum chloroide*, Minaka.
- Avenae** (Pers.) Juss. Fairly common on *Avena sativa* in Man. and Sask. A. folia developed this smut after artificial inoculation at Indian Head, Sask. in 1929 (82). Hanna and Popp (202, 252) made crosses of *U. Avenae* X *U. less*.
- bromivora** (Linn.) Fock. von Wundt. Fairly common on *Agropyron tenerum* in Man. and Sask. smut most destructive when this grass is grown for seed, but it can be prevented by seed disinfectant. Also on *Bromus ciliatus*, Saskatoon, Sask. This smut has been produced by inoculation of the following hosts in Sask. *Agropyron dasystachyum*, *A. Richardsonii*, *Bromus laetiflorus* and *B. pumiliiflorus*. (See 28.)

- Ustilago Hordei** (Pers.) Lagerh. Common and injurious to *Hordeum vulgare* in Man. and Sask.
- **hypodytes** (Schlecht.) Fr. On *Situa sessilis*. Beaver Creek, Pike Lake, Saskatoon, Vonda and Yorkton, Sask., on S. *viridula*, Rapid City and Trevelask, Man.
- **levis** (Kellerm. & Sprague) Magn. (= *Kellera Willd.*). On *Avena sativa* throughout Man. and Sask., on *A. fatua* in the field at Alameda, Drinkwater and Frodober, Sask., and produced on the host by artificial inoculation in the greenhouse at Saskatoon (42). Apparently more common than *U. Aeveri*, fields from untreated seed may develop as much as 50% smut. Welsh (254) found that oat plants infected with smut were more heavily rusted than those without smut.
- **longissima** (Sow.) Tul. On leaves of *Glyceria (Panicum) grandis*. Rapid City, Man., Saskatchewan Sask.
- **Lorentziana** Thüm. Common on *Hordeum jubatum* in Man. and Sask., on *Elymus Macounii*, Berens River, Man. This smut is very prevalent on *H. jubatum* in some areas, e.g. at Norway House, not so common around Winnipeg. It has apparently not been recorded previously on *Elymus*, but Seymour includes it as *Sitasion*. The smut on *Elymus* agreed in all details with *U. Lorentziana*.
- **medians** Bredenkopf. On *Hordeum vulgare* on experimental plots at Brandon, cell W F Hanna, see Can. Plant Disease Survey Report for 1935, 12.
- **neglecta** Nelsk. On *Schistis glauca*. Univ. apparently rare, although the weed host is common.
- **nuda** (Jens.) Rostr. Common on *Hordeum vulgare* in Man. and Sask.
- **striiformis** (Westend.) Nelsk. Rarely found on *Berkmannia Nyssardii*, Fox Prairie, Univ. Man., on *Panicum prostratum*, near Beausejour and Univ. Man., on *Elymus Macounii*, Saskatchewan Sask.
- **Tritici** (Pers.) Rostr. On *Triticum aestivum* and *T. durum* in Man. and Sask. Traces of this smut can be found wherever wheat is grown, but it is seldom very injurious. (See Hanna and Popp (200, 203, 206).)
- **utriculosa** (Aves.) Tu. On *Polypodium Pensilvanicum* in threshed wheat, Battleford, Sask. The wheat was graded smutty. A similar case is reported by Aasmith and Malloch (Can. J. Research 7: 578) from Alberta.
- **Zea** (Berkm.) Ing. On *Zea Mays*, across southern Man. and at Indian Head and Saskatoon, Sask., on *Z. Mays* var. *japonica*, Duck Lake, Sask., especially injurious to *Z. Mays* var. *rigida* (Sweet corn) in Man.

UREDINALES

Melanconiales

- Chrysomyxa Arctostaphyli** Diet. III on leaves of *Arctostaphylos uva-ursi*. Berens River and Victoria Beach, Man., Duck Lake and Lake Waskesiu, Sask.
- Cassandrea** (Pock & G. W. Clut.) Irmst. II, III on leaves of *Chamaedaphne calyculata*. Berens River. This is the most northerly record for North America.
- **Ledi** (Alb. & Schw.) de Bary. O, I on *Picea mariana*, Prince Albert, Sask., II, III on *Larix laricina*, Berens River and V. via. Man., Prince Albert, Sask. This species appears to be less injurious on *Picea* than the next. The hypophyllous uredia are not always easily found on *Larix*. The first American cultures were made by Fraser.
- ledicola** (Pock) Lagerh. O, I on *Picea canadensis*. Norway, Prince Albert and Speddie, Sask., on *Picea mariana*, Muskeg to Norway House and northward in Man., Prince Albert, Sask., II, III on *Larix laricina* growing beneath or near the affected spruces. The rust is often injurious to spruces in northern Man. and in Prince Albert National Park, Sask. Dr. P. H. Gregory found the spruces yellow with rust from The Pas to Churchill, Man. in 1934. This rust was first cultured by Fraser in 1910 in Nova Scotia.
- **Pyrolae** (DC.) Rostr. O, I on cones of *Picea canadensis*. Man. (cited in Arthur's Manual, specimen not available in Man.) and cultured in Sask., II, III on *Pyrola asarifolia*, Duck Lake and Saskatoon, Sask., on *P. rotundifolia*, Komarno and Univ. Man. This rust was first cultured by Fraser, in Nova Scotia in 1911, and in June, 1924, telial material on *Pyrola asarifolia* from Duck Lake, Sask., was used to inoculate *Picea canadensis* at Saskatoon, aecia appearing on the cones in August.

- Colosporium Solidaginis** (Schw.) Thum. O. I on *Pinus Banksiana*, Elk Island Man., Meadowall and Spadina Sask., II III on *Salix confertifolia*, *S. erioidea*, *A. latifolia*, *A. Lindbergiana*, *A. noronae-gilgii*, *A. pennsylvanica*, *A. rotundifolia* and *A. umbellata* n. Man. and *A. laevis* n. Sask. on *Callistephus divaricata* n. Man. on *Solidago canadensis* and *S. serotina* in Man. and Sask. on *S. puberula* and *S. multicaulis* in Man. This rust is very abundant in damp seasons and spreads far from trees by uredinospores developed from overwintered aecidium. Efforts to extend the host range have not been made by the writers.
- **Viburni** Arth. II III on *Viburnum lentago*, C. v. This rust could be found, with a little search, from Aug. to Oct. 1932, at various places around the University woods. It has not been found elsewhere in western Canada, but occurs in eastern Canada.
- Cronartium Comandrae** Peck. O. I on branches of *Pinus Banksiana*, Spadina, Sask., coll. John Laycock and Marchmont, Sask. II, III on *Comandra serotina* Norway House Man., coll. Jelliffe, across northern Man., in Zones 3 and 4 n. Sask. and at Peace River and Tabor, Alberta.
- Comptoniae** Arth. O. I on branches of *Pinus Banksiana*, Beasepuke, det. I I. Comora, and Kenora, II, III on *Myrica gale*, Ingolf and Kenora.
- **Quercuum** Peck I Miyabe. O. I on *Pinus* sp., Moorhead, on *P. Banksiana* in Alberta, and at Meadowall, Sask.
- Myalepora Polypodii** Pers.) Magn. II on (*polypodium* Pol.) *fragilis*, Saskatoon Sask. Fraser and Connors (25) report that the rust persists in a winter with no snowfall.
- Melanconium Abietis-capreaeformis** Tuboul. O. I on *Abies balsamea* Lake Waskewau, Sask., II III on *Salix erioidea*, C. v. Man. on *S. erioidea* Athol and Watson Sask., on *Salix* spp. across Man., common along the Hudson's Bay railway and at Humboldt and Sifton Sask. This rust is apparently more common than *M. Populi* in Man. The first American cultures were made by Fraser.
- Bigeloviae** Peck. O. I on *Leuca leucostoma* Birds H. I. Man. II III on *Salix amygdaloides*, St. Norbert Man., on *S. pubescens*, Churchill, Man. coll. P. H. Gregory, probably this rust on *Salix* spp. at Mervin, Saskatchewan and Yorkton, Sask.
- **Lini** Pers. I Lé. II III — *Linum* Le. var. in Man. and Sask. on *L. rugifolium*, Saskatoon, Sask. O. I II III on *Linum catharticum* n. across Man. and Sask. and sometimes in, urous. No definite records of aecia are available except on *L. catharticum*.
- Medusae** Thum. II III on *Populus balsamifera*, Saskatoon Sask., on *P. deltoides*, Redfern Sask., on *Populus* spp. n. Man. and Sask. This rust is sometimes in, urous on "Russian Populus" and other cultivated forms.
- **occidentalis** Jackson. II III in *Populus balsamifera* Saskatoon, Sask. on *Populus* sp., Indian Head Sask. These collections are assigned to this species with some doubt.
- Malampscora Cernatii** Pers.) Sacc. O. I *Peridermium canadense* on *Prunus canadensis*, Norway House and Victoria Beach Man. Lake Waskewau, Cypress II I and Prince Albert, Sask. on *P. canadensis* along Hudson's Bay Railway Man. and Prince Albert Sask., II III on *Cornus arbuscula* Brandon Man. Roetman coll. T. N. Walling and Saskatoon, Sask. The rust forms large patches, becomes on spruces the perithecia are abundant in spring, secrete drops of liquid and have a strong odor suggesting *Zygadenus* or *Dactylophora*.
- Malampscoridium betulinum** Pers. Kieb. II III on *Betula* sp. Treesbank, coll. S. C. Kiehl. The one collection was made Oct. 6, 1922.
- Pucciniastrum Agrostoides** (Hehr.) Tranz. II on *Agrostis grypsopoda*, Treesbank, Victoria Beach eastward Man., Edmonton Alberta. The rust evidently lives over winter as uredinospores or mycelium.
- **articulorum** (Agth.) Tranz. II III on *Rubus arcticus*, Sutherland Sask., on *R. corymbosus* across Man. and at Hughesville Lake and Lake Waskewau Sask., probably this rust on *R. arcticus* in Man. too.
- **Cooperianum** (Kuhn) Kieb. O. I on *Abies balsamea* Lake Waskewau, Sask. III on *Leuca leucostoma* n. Lake Waskewau, Sask. on *V. sp.* (probably *V. balsamifera*) Moorhead in Victoria Beach, Man.
- **Potentillae humarum** II on *Potentilla fruticosa*, Berens River Norway House, and along the Hudson's Bay Railway, Man.
- **pusillulum** (Pers.) Diet. O. I on *Abies balsamea*, Alberta, recorded in Arthur's Manual, II, III on *Epilobium adnunciatum*, Norway House and Victoria Beach, Man., Saskatoon,

Sask., on *E. angustifolius*, Minaki to Norway House, Man., Ellsra, Saskatoon and Prince Albert, Sask., Dunvegan and Peace River, Alberta, on *Gleditsia* sp. Univ. Man., Saskatoon, Sask. Cultures were first made in America by Fraser.

Pucciniastrum Pyrolae (Pers.) Schreb. II on *Pyrola asarifolia*, Treestank and Winnipeg, Man., Wynyard Sask. on *P. chionantha*, Treestank, Man., coll. E. Cuddihy, on *P. edipylon*, Beaver Creek and Saskatoon, Sask., on *P. rotundifolia*, Univ. Man.

— **aparam** (Wint.) Fock. II III on *Arctostaphylos rubra*, Point Churchill, col. Wm. C. Gibson, June 1932 (on Plant Disease Survey Rep. for 1932-1933) found by Dr. M. Newton to be common on this host (or *A. spicata*?) at Churchill, in Aug., 1935. These records extend far to the eastward the range of this rust.

Uredinopsis mirabilis (Peck) Mags. O, I on *Abies balsamea*, Mank.

— **Struthiopteridis** Sacc. O, I on *Abies balsamea*, Lake Waskesiu, Sask., II rather common on *Pteris aquilina*, Univ. Man., on *Athyrium filix-femina*, Bruner, Man., det. I. L. Connors. Aecia were present on *Abies balsamea* above the *Athyrium*. Fraser first connected the rust on *Abies* and *Pteritis* by cultures.

Puccinios

Gymnosporium Peckiana (Howe) Trotter O, I on *Rubus acutis*, Sutherland, Sask., on *R. arcticus*, Mervin, Sask., coll. W. E. Laar, on *R. triflorus* across Man. These have not been noted but the aeciospores were found to germinate with germ tubes.

Gymnosporangium saccatiscum Chev. O, I on *Pyrus (Sorbus) americana*, Minaki to Norway House, Man.

— **Bathali** Kern. O, I on *Crataegus chrysoarpa*, Estevan, Sask., coll. J. W. Scannell, on *Crataegus* sp., Sidney, Man., det. I. L. Connors.

— **claviformis** (Jacq.) DC. O, I on *Amelanchier alnifolia*, Holmfeld and Virden, Man.; possibly this species on *Crataegus chrysoarpa*, Saskatoon, Sask.

clavipes Cooke & Peck. O, I on *Amelanchier alnifolia*, Berens River and Victoria Beach, Man., Saskatoon, Sask., on *Crataegus* sp., Winnipeg and Virden, Man., on *Pyrus* sp. (crab apple), Winnipeg, coll. C. W. Lowe, det. I. L. Connors, III on *Juniperus communis*, Victoria Beach, Man., on *J. sibirica*, Saskatoon, Sask.

corniculans Kern. O, I on *Amelanchier alnifolia*, Birds Hill and Winnipeg westward, Man., Indian Head and Saskatoon, Sask., III on *Juniperus horizontalis* in western Man. and common in Saskatchewan.

— **gallobozum** Farl. O, I on *Crataegus* sp. and III on *Juniperus horizontalis* in Sask.; det. I. L. Connors.

— **juvencana** Kern. O, I on *Amelanchier alnifolia*, western Man. and Indian Head and Saskatoon, Sask., III on *Juniperus horizontalis*, Saskatoon and Sutherland, Sask. This rust produces witches' brooms on the creeping Juniper. Cultures were made by Fraser (24) with Sask. material.

— **Neufusii** Arth. O, I on *Amelanchier alnifolia*, Victoria Beach, det. J. C. Arthur.

Nyctopora clavellata (Berk.) Arth. III common on *Arctostaphylos* from Minaki and Univ. Man. eastward, northward, and westward into northern Sask.

Phragmidium Andersoni Shear. III on *Potentilla fruticosa*, Birds Hill and Univ. Man., Lake Waskesiu, Pike Lake and Prince Albert, Sask.

— **teliciflorum** (Toot.) J. F. James. II, III on *Rosa* spp. cult. Morden and Univ. The fungus seemed to fit this species, but it may have been a species developing normally on wild roses.

— **tricala** Syd. O, I, II, III on *Potentilla hypoleuca*, Virden, Man., or *P. latifolia*, Cypress Hills, Sask., on *P.* spp. Mervin and Saskatoon, Sask., Edmonton and Peace River, Alberta.

— **truncatigum** Arth. O, I, II, III on *Rosa blanda*, Brandon and Virden, Man., on *Rosa* sp., Swift Current, Sask. The host and range make these determinations somewhat doubtful. Arthur recorded this species from Manitoba in the N. A. Flora, but in his Manual does not list it in Canada east of Alberta.

— **Potentillae** (Pers.) Karst. O, I, II, III on *Potentilla hypoleuca*, *P. gibbula*, *P. hypoleuca*, *P. pensylvanica*, *P. strigosa* and other species across Man., Sask. and Alberta to Peace River. This rust is very common and often conspicuous on the prairies.

Rosa-acicularis Liro. II, III on *Rosa acicularis*, Norway House, Man., on *R. blanda*, Pike Lake, Sask., on *Rosa* spp., Melfort, Sask. and Edmonton, Alberta.

- Phragmidium Rosae-arkansanae* Diet. II III on *Rosa* spp., Filroy, Regina Beach and Saskatoon, Sask., Edmonton and Peace River, Alberta.
- *rosicola* (Eh. & Ev. Arth. III on *Rosa* sp., Saskatoon, Saskatchewan. The unusual rust is seldom found. It is recurrent on *R. rugifolia* in Alberta and on *R. rugifolia* in Montana and Nebraska. The teliospores are one-celled.
- *Rubro-idea* (DC.) Karst. O I, II III on *Rubus strigosus* at Sask., on *R. idaeus* var. *strigosus* at Brandon and Tremblay, Man.
- speciosum* (Fr.) Cooke. O I on *Rosa* sp., Saskatoon, Sask., III on *R. Marmosa*, Indian Head, Sask., and on *Rosa* spp. cult. and wild, across Man. and in Sask. The toadstoolous toms are often conspicuous on roses.
- Pileolaria Toxicodendri* (Berk. & Rav.) Arth. II, III on *Rhus Toxicodendron*, Brandon, Tremblay and Winnipeg. Only one collection has been made in eastern Man., despite considerable search.
- Puccinia Absinthii* (Hedw. f.) DC. II, III on *Absinthium* spp. Ass. Kermanshah and Lamsland, Sask. on *A. frigidum*, Saskatoon, Sask., on *A. graveolens*, Dauphin, Nelson and L. v. Man. This rust is doubtless present across the prairie on several species of *Absinthium*.
- amphigena* Diet. O, I on *Mousethorax canadensis*, Prince Albert, Sask., on *Veneria* (similar) *canadensis*, Birkdale, Pike Lake and Saskatoon, Sask., on *Paulownia deltoidea*, Prince Albert, Sask., on *Smilax latifolia*, Birds Hill, Man., II III on *Cornus rugifolia*, common in western Man. and across Sask. First evidence of a Prince Albert clearly indicated that the stages on *Mousethorax canadensis* and *Saxifraga strobilata* were connected with those on *Cornus rugifolia*.
- Andropogonis* Schv. var. *micropuncta* [Eh. & Ev. Arth. O, I on *Castilleja sessiliflora*, Indian Head, Sask.
- Andropogonis* var. *Onobrychioides* Burr. f. Arth. O, I on *Petalostemon canadensis* and *P. purpureum*, Birds Hill, Man.
- Andropogonis* var. *Pentstemonis* [Schv. Arth. O, I on *Pentstemon occidentalis*, Brandon, Man. on *P. nitens*, Indian Head and Estevan, Sask., on *P. crinitus*, Neudorf, Sask., on *P. nemorosus*, Saskatoon and Sutherland, Sask., II, III on *Andropogon scoparius*, Bismarck, Man. and Souderton, Sask. Cultures with Sask. material were made by Fraser (24). *P. Ellipticus* on *Andropogon* has *Andropogon* a stage, verrucose and thick walled, and teliospores somewhat wider.
- Andropogonis* var. *polygalina* (Peck) Arth. O, I on *Polygala sanguinea*, Brandon. A heavy infection was found on July 1, 1928. This record extends the range considerably to the west and north.
- Andropogonis* var. *pustulata* Curt. f. Arth. O, I on *Cassandra polida*, Morden, Winnipeg, on *C. umbellata*, Birds Hill, Winnipeg.
- *Antennaria-virginianae* Schv. III on *Antennaria canadensis*, L. v., Man. and Beaver Creek, Sask.
- *Angelicae* (Schum.) Fackel. II on *Zinnia ceras*, Brandon, col. I L. Connors, III on same host at K. Harvey. The II spores are rather small (23-30 \times 20-22 μ , cf. I L. Connors). The K. Harvey specimen may be *P. Zinniae* (q.v.) the telia are mostly hypophyllous, the spores up to 48 \times 24 μ , spore wall about 2 μ thick, smooth so far as observed. *P. Angelicae* is not known elsewhere on *Zinnia* in North America.
- *angustata* Peck. O, I on *Lycopus lucidus* var. *americanus* (f. *asper*), Sutherland, Sask., on *Mentha glabra*, Brandon and Dauphin, Man., II, III on *Erpophorum angustifolium*, Sutherland, Sask., on *Scirpus atrocervinus*, Brandon, Man., on *S. ripens*, Mississauga, western Ont., on *S. macrocarpus*, Brandon, Man. and Pike Lake, Sask. Cultures were made by Fraser (20, 24). A new race is taken, the race on *Mentha* may be referred to *P. Menthae*.
- *anomala* Boer. II III on *Hordeum vulgare*, Man. and Qu'Appelle, Sask. A trace of leaf rust of barley was collected at L. v., Man. in 1922. It was not found again until 1927, when it was prevalent in eastern and southern Man. It was common in 1930, and has occurred now and then since 1933, but it does not cause a serious disease of barley in western Canada.
- Antirrhini* Diet. & Holm. II common on *Antirrhinum majus* across Man. and at Estevan, Regina and Saskatoon, Sask. Snapdragon rust was noted by gardeners in the Winnipeg area in 1919, some of the rust may perhaps have been present for a year or two before. The

first collection known in the prairie provinces was made in the Univ. greenhouse, Winnipeg, on Mar. 30, 1930. *P. americana* soon spread over Man., and since 1935 has been found in Sask. It is often recorded in magdrones.

***Psuedosia Acantharia* (Nelson) West. III** on *Acanthia* (*Madryga*) *interfusa* (Chamberlain and Lake Washburn, Sask.) on *Stellaria longifolia* Indian Head, Sask., on *S. longipes* Virdin, Sask.

— ***Taraxacella* Diet. & Holst.** This rust is reported as *Arthuria* *Matsum.*, etc. on *Lolium temerale* from Sask. The collection was made at Prince Albert, Sask., but it now appears doubtful that the host is really *L. temerale*, and it is also doubtful that the rust is *P. temerale*.

— ***argentea* Schultz** West. III on *Impatiens* *fulva* Spalding, Sask., coll. John Lawack.
— ***Arctioides* Tuck.** O. I on *Chenopodium album* and *Lactuca scariola* Man. on *Lappula arvensis* (Delavay) Man. (as *Plant. Canad. Survey* 333) (1 specimen not at Univ. Man. apparently the first record on this species) and on Sask. as follows: on *Stripler* sp. Saskatoon; on *Chenopodium album* Assiniboia (where Indian Head and Quill Lake); on *Eragrostis canadensis* Weyburn; on *Chenopodium* sp. Battleford, Batoche, Saskatoon, Lethbridge, on *Lepidium* sp. near Lethbridge, on *Physalis* *capitata* Humboldt and Saskatoon (also at Vegreville, Alberta); on *Lappula* *arvensis* Man. (as *P. arvensis* in *P. arvensis* var. *viridifolia* on *Satureia* *arvensis* var. *Beckleyi* and *Shugartii* in Sask. (under all names) *S. frutescens* and *Thalictrum* *arvense* at Lethbridge; on *Trigonotis* *maritima* (L.) *viridifolia* and Saskatoon. This rust has also been collected on *Satureia* *arvensis* at Lethbridge, Alta. II, III, in *Thalictrum* *arvense* *viridifolia* (L.) Man. also western, across Sask. This interesting rust is common on or near alkaline areas in the prairie. Its wide range of species hosts doubtless includes several plants in Man. and Sask. in addition to those given. The rust has been collected by Fries 72, 74) and by *Chenopodium* and *Physalis* *capitata*.

— ***Aspergill* 14.** O. I, II, III on *Lycopersicon* *esculentum* across Man. and at Indian Head and Saskatoon, Sask. This rust seems more common, especially to *Aspergillus*.

— ***Asteria* Duby** III on *Aster confusus* (Muhl.) western Sask. on *A. longifolius* Leth., Man., on *A. multiflorus* Batoche and Weyburn, Man. on *A. novae-angliae* Batoche, Man., on *A. laevis* Indian Head, Sask. on *Aster* spp. Batoche, Indian Head and Saskatoon, Sask.

— ***atrofusca* (Duby) Thompson** Hous. O. I on *Chenopodium* *hirsutum* Batoche, Sask., on *A. temerale* Prince Albert, Sask., on *Lappula* *arvensis* Batoche, on *L. physaloides* Quill Lake and Tremblant, Man. Indian Head, Sask. (as *A. physaloides* Lathrop) Batoche, Sask., on *Aster* *multiflorus* Weyburn, on *Aster* *novae-angliae* Batoche, Man. on *A. laevis* Indian Head, Sask. on *Aster* spp. Batoche, Indian Head and Saskatoon, Sask. This western rust is probably common in damp seasons.

— ***atropurpurea* Peck & G. W. Chet.** III on *Lycopodium obscurum* Manitowish, W. George and Saskatoon, Sask. The host is given in Arthur's manual as *L. obscurum*. The range of this rust probably includes Man., but it has not yet been collected there.

— ***Bardonia* Wallr. & Corda.** II, III on *Dracopis* *maritima* Emerson, Leth. and Weyburn, Man. This rust is common along the Red River.

— ***Calthaeae* Loh.** II, III on *Caltha palustris* Beaver River, Batoche and Virdin, Sask., Man. *P. calthaeae* is not uncommon in eastern Man. It is distinguished from *P. calthaeae* by having smooth, narrower teliospores.

— ***calthaeola* Ashcroft.** II, III on *Caltha palustris*, Clear Lake to Dauphin, Man. Lake Washburn, Sask. This species has been found by the writers only in western Man. and northern Sask.

— ***Caricola* (Arthur) Ashcroft var. *granularulata* Arth.** O. I on *Ribes cereum*, *R. cereum*, and *R. asynanthoides* in Man. and Sask., on *R. nigrum* and *R. nigrum* in Sask. II, III on *Carex* spp. in Man. and Sask. This rust is common on wild *Ribes* spp. and may range largely to cultivated species when sedge grow best or amongst them. The species of *Carex* infected have not yet been determined in western Canada, except *C. dactyloides* which is listed in the N. A. Flora 7: 355 from Man. as a host for the form with largeuredospores formerly called *P. emissa*.

— ***Caricola* var. *viridula* (Kern) Arth.** O. I on *Carex gracilis* across Man. and as far north as Point Churchill, coll. Wm. Gibson, on *C. laxa* in Sask. and at Olds, Alberta; II, III on *Carex canescens*, Dauphin, Man. and Pike Lake, Sask., on *Carex* spp. in Man. and Sask. The names for the species of *Carex* given here are somewhat uncertain.

- Puccinia Caricis-Shepherdiae** J. J. Davis. O, I on *Eleocharis argentea* and *Shepherdia canadensis* in Man. and Sask., on *R. angustifolia* and *R. argentea* in Sask., on *R. argentea* also at Morden, Alberta, II, III in Sask. as follows: on *Carex arkensis*, Pike Lake and Saskatoon, on *C. lasiocarpa*, Saskatoon, on *C. substricta*, Battleford and Sutherland, on *C. muscivora*, Pike Lake. Frazer and Ledingham (26) extended Davis' culture work with this species.
- Cicuta** Lach. O, I, II, III on *Cicuta occidentalis*, Lake Waskesiu, Sask., II, III on the same host, Saskatoon, Sask., probably also on this host, although recorded as *C. maculata*, at Brandon, Man. This rust is apparently not common.
- Cirsium** Pritz. III on *Cirsium alpinum*, Norway House to Victoria Beach, Man., Lake Waskesiu and Twinn, Sask. This rust is often abundant in beds of *C. racem.*
- Citrus** Lach. II, III on *Citrusus Flammula* in western Man. and in Sask., on *C. limonicum*, Clear Lake, Man. on *C. undulatum*, Graveland and Trevison, Man., on *Citrus* spp., St. Gregor, Sintuluta and Saskatoon, Sask.
- Comandra** Peck. III on *Comandra Nida*, Norway House, Man.; on *C. pallida*, Turtle Lake, Sask.
- conglomerata** (Strauss) Schmidt & Kuntz. III on *Potentilla palmata* from southeastern Man. northward into northern Sask. This rust is often common where the host is found.
- Conoclella** (Pers.) Cast. O, I, II, III on *Conoclella asperum*, Neepawa and Univ.
- coronata** Corda. O, I on *Eleocharis argentea*, *Rhamnus olivifolia*, *R. cathartica* and *Shepherdia canadensis* in Man. and Sask. II, III on *Avena sativa*, Beckmann's Springdale, Brown's colinus and *Cynodactylon canadensis* in Man. and Sask. on *Agropyron tenerum*, *Avena fatua*, *Bromus Pector.*, *B. Pseudinanus*, *Cataglyphis elongata*, *C. incognita* (l' meniscus), *Deschampsia cespitosa*, *Elymus canadensis* and *Hordeum jubatum* in Sask. most of them having been collected at Saskatoon. This species has been divided into several races based on infection capabilities. The race on oats, *P. coronata leneae* is often injurious. Cultures by Frazer (24) and Frazer and Ledingham (27) show that four races or varieties occur in the prairie provinces, *P. coronata Avenae* (see 249, 250), *P. coronata Cataglyphidis*, *P. coronata Bromi*, and *P. coronata Eleocharis*.
- Crundallii** Pammel & Hume. O, I common on *Symphoricarpos occidentalis* across Man. and Sask. II, III on *Festuca ovina*, Saskatoon, Sask. The trival stage is probably also common, but is inconspicuous.
- Cypripedium** Arth. & Holm. III on *Cypripedium parviflorum*, St. Gregor, Sask. This rare rust is apparently known in Canada from this one collection only.
- Dact.** G. W. Chat. III on *Stironema robustum*, common in Zone 2 in Sask., collected also at Edmonton, Alberta; not yet found in Man.
- Distichlis** Ell. & Ev. O, I on *Glauz maritima*, Saskatoon, Sask., on *Stironema robustum*, Morden and Univ., Man. Kennewick and Yorkton, Sask., II, III on *Spartina gracilis*, *S. pectinata* and *S. sp.* in Sask., on *S. pectinata*, Waskada, Man. Cultures were made by Frazer (22) on *Glauz maritima*. None of the collections of *avicia* on *Stironema* may belong to *Uromyces acuminatus* var. *Stironematis* (s.p.).
- Douglasii** Ell. & Ev. O, I, III on *Phlox Hoodii*, Carmel, Dana, Katopwa and Saskatoon, Sask. The trival stage has been found twice at Saskatoon.
- Draba** Ruckelsh. III on *Draba* sp., Cape Merry peninsula at Fort Churchill, northern Man., collected 1929 by E. Johannes, specimen sent to I. Jentstad, who reported by letter.
- Elatine** Arth. III on *Sparganium obtusum*, Prince Albert and Saskatoon, Sask. This is probably the variety *Ranunculii* Maass, *avicia* on *Ranunculus abortivus*, Lac du Bonnet, Man., may possibly belong to this rust.
- Eleocharidis** Arth. O, I on *Eupatorium purpureum* var. *maculatum* and II, III on *Eleocharis* sp., Brandon, Man. This rust was collected in 1917 by W. F. Frazer, and has not been encountered since.
- Elliptica** Thüm. O, I on *Viola myrsinites*, Saskatoon, Sask., on *V.* spp., Eden and Winkipog, Man., Saskatoon and Sutherland, Sask., II, III on *Andropogon scoparius*, Creelman, Langham, Saskatoon and Sutherland, Sask. The *avicia* are more delicate than those of *P. violae*, and are borne on pale yellow spots, not red under *P. Andropogonis* var. *Pseudostemonis* for differences in II and III on *Andropogon*.

- Puccinia Grindeliae** Peck. III on *Aplopappus spinulosus*, Lloydminster, Saskatoon and Southey, Sask., on *Grindelia pinnatifida*, common in Sask., and at Fischer Creek, Alberta, on *Lygodesmia pinnata*, Brandon, Tretheway and Virden, Man.
- **Haleniae** Ark. & Hark. III on *Halenia angustata* var. *acuta*, Minak, western Ont.
- **Helianthi** Berk. O, I, II, III on *Helianthus annuus*, common and sometimes noxious in Man. and Sask., collected also at Edmonton, Alberta, on *H. Maximiliani*, *H. petiolaris*, *H. scaberrimus* and *H. divaricatus* in Man., on *H. arvensis*, *H. borealis* and *H. subserotinus* in Sask. (Lange (150-156) and Brown (145-147) have studied the heterothallism and diploidization of this rust).
- Hesperiae** (N. & D.) Diet. III on *Hesperis matronalis*, Brown River and Tretheway, Man., on *Malva nutt.*, common when this host grows in Man. and Sask.
- **Hieracii** (Schum.) Mart. ex H. III common on *Hieracium androsaceum* and *Taraxacum officinale* in Man. and Sask., on *Aquilegia gilliesii*, Athabasca, St. George and St. Walburg, Sask., on *Euphrasia cuneata*, Cypress Hills, Sask., on *Taraxacum densatum*, Kenberry Lake, Sask., on *Hieracium canadense*, Victoria Beach, Man. *Pennis* have been collected on *hieracium* in Man. and the rust on this host extends at least to Mile 32 on the Hudson Bay Railway, Man., and to Edmonton, Alberta.
- Intermedia** Peck. O, I common on *Iris setularis* in Sask., III collected on the same host at Hammers, Man. and Saskatoon, Sask. The rust evidently accompanies the host to approximately its eastern limit in Man.
- Iridis** (N. & W.) H. II on *Iris versicolor*, West Hawk Lake in eastern Man. This rust is new in Man., many *Iris* plants were examined before it was found.
- **Koeleriae** Vnt. II III on *Koeleria cristata*, A. prairie, Saskatoon, Sask.
- **Liatridis** Wessol. Bethel. O, I on *Liatris aspera* (*L. scariosa*), Birds Hill, Man., Belvoir, Sask., on *L. aspera* s. str., Wrentham, Sask., on *L. pinnatifida*, Beaver Creek, Alta., Nantahuta and Sutherland, Sask. II, I, II on *Liatris hyemalis*, Tretheway, Man., Canora, McVie and Northern, Sask.
- **Limonae** Magn. O, I on *Limonium* (*Neonburgia*) *degrajii*, Norway House.
- **Linkii** Klotzsch. III on *Labradorium parviflorum*, Brown River and Norway House, Man., Echo Lake, Red Lake, Kenberry Lake and Lake Waskow, Sask. This rust is common in the north where the host grows.
- Magnusiana** Hark. O, I on *Asteraceae canadensis*, The Pas, Man., and recorded in Arthur's Mamm. from Sask., II, III on *Phragmites communis*, Dupeyron, Man., coll. W. P. Fraser in 1924. The teliospores are distinguished from those of *P. Phragmites* by being narrow, not constricted, and thickened at the apex.
- **Mahoeae** Berk. III on *Malva rosea* and *Malva rotundifolia*, Linc., Man., on *Malva sylvestris*, Wamwoj. Although doubtful reports of this rust are numerous, previous to 1924 it was not found definitely until 1932 when it appeared on hollyhock at the University and has persisted to cause some injury in succeeding years. II, III on *Malva* and *Malva* by Butler (82, vol. III).
- Marylandica** Under. O, I, II, III common on *Schizanthus pinnatifidus* across southern Man. and in Zone 3 in Sask.
- **Menthae** Berk. O, I, II, III common on *Mentha glabra* in Man. and Sask., on *Mentha sylvestris* and *Mentha* spp. in Sask., on *Mentha canadensis* in Man.
- Menyanthes** Berk. & C. ex H. III on *Menyanthes canadensis*, Kenora, western Ont.
- multifolia** Fockel. III on *Asclepias tuberosa*, Kenberry, Man. and Raymond, Sask., on *Asclepias frigida*, Brandon and Virden, Man.
- **minuensis** Thüm. O, I, II, III common on *Lactuca pulchella* across Man. and Sask., and in Peace River district, Alberta.
- **monarda** Peck. Arth. O, I on *Arabis brachycarpa*, *A. ovata* and *A. microcarpa* (*A. ? Holboellii*), Saskatoon, Sask., and on *A. microcarpa* also at Carmel, Sask., on *Arabis* spp., Birds Hill and Vivian in eastern Man., Tretheway, Man., Katopha and Pike Lake, Sask. II, III on *Koeleria cristata*, *A. grandis*, Saskatoon, Sask., probably this rust on *Trisetum spicatum*, La. Pa., Man. The aecia are common in early spring on *Arabis*, and arise from systemic mycelium.
- **montanensis** Ell. II, III on *Apocynon androsaemum*, Saskatoon, Sask., Edmonton and Peace River, Alberta, on *A. repens*, Saskatoon, Sask., on *A. Richardsonii*, Dauphin, Man., Saskatoon, Sask., Peace River, Alberta, on *A. Smithii*, Brandon, Man., on *A. tenax*,

Brandon, Man., Lloydminster and Saskatoon, Sask., Peace River, Alberta, on *Elymus canadensis*, Brandon and Dauphin, Man., Saskatoon, Sask., on *E. carinatus*, Dauphin, Man., on *E. juncea*, Brandon, Man., on *Hordeum jubatum*, Edmonton, Alberta. The rust is widespread on the prairies and occurs far beyond the usual host *Berberis Fruticosa* of Colorado and New Mexico.

- Puccinia obscura** Schroet. II, III on *Luzula campestris* var. *multiflora* McKague, Sask., coll. A. J. Breitung. This extends the known range of this rust.
- **obscuta** Peck. II, III on *Scirpus validus*, Pike Lake and Vonda, Sask.
- **orbicula** Peck & G. W. Clint. III on *Pseudotsuga racemosa*, Cudworth and St. Gregor, Sask. The range of this rust doubtless includes Man.
- **oculta** Arth. & How. III on *Rumex crispus*, Gimborn, Man., Meota and Lake Waskesiu, northern Sask., and Craignyle, Alberta (A. H. Brinkman).
- [— **Ornithogalli-thyrsoides** Duri. This introduced rust developed II and III on peduncles and flowers of *Ornithoglossum luteum* grown in Winnipeg from bulbs from Capetown, South Africa. It was collected in 1932.]
- Ostenii** Jackson. O, I, II, III on *Dodonaea viscidiflora*, Humboldt, Sask. The O and I were identified by Cummins as belonging to this species rather than to *O. ramosa arumensis*. This record adds another host and extends the range of the rust.
- **Parkeae** Diet. & Holw. III on *Ribes toxicaria* (var. *parkei*), Barß, Alberta. This also adds a host and extends the range.
- **peridermoaspora** (Diet. & Tracy) Arth. O, I on *Fraxinus pennsylvanica*, Univ., Man., on *F. pennsylvanica* var. *linearis*, Esteron, Sask. Both collections were made in July 1925.
- **Phragmites** (Schum.) Kern. O, I on *Rheum Rhaponticum*, Brandon and Inwood, Man., on *Rumex crispus* and *R. occidentalis*, Dauphin, Man., II, III on *Phragmites communis*, Dauphin. The rust is rarely reported on *R. barthi*, but occurred in early July 1933, the Inwood specimen being so abundantly infected that it was sent in by a grower who asked how the disease could be prevented. Cultures were made by Fraser (20) with trial material sent on *Rumex occidentalis*.
- **Physalidis** Peck. III on *Physalis virginiana*, Treeshank., coll. J. C. Middle, recorded in Arthur's Manual on *P. heterophylla* from Man.
- **Pimpinellae** (Struss) Martin. O, I, II, III common on *Osmorhiza fringilla* at Univ. and Winnipeg, Man., III on the same host at Pike Lake, Sask.
- **Poa-audetinae** (Westend.) Jérolas. II on *P. polystachya* in Man., II and III in Sask., on *P. palustris* (*P. flexilis*) Saskatoon, Sask., on *Poa* sp., Humboldt, Sask. The uridia contain pseudosporae, the telia are not commonly produced, but were found in Sask.
- **Polygoni-amphibii** Pers. var. *Convolvuli* (Alb. & Schw.) Arth. II, III on *Polygonum Convolvulus*, Treeshank and Univ., Man.
- **Polygoni-amphibii** var. *Paracariae* (Struss) Arth. II, III common on *Polygonum amphibium* var. *Hortuense* and *P. Mullenbergii* in Man. and Sask., and on the latter host at Vegreville, Alberta.
- porphyrogenita** (Curt.) III on *Cornus canadensis*, Norway House to Victoria Beach, Man., Kingsmere Lake and Lake Waskesiu, Sask. This rust is fairly common where the host grows abundantly.
- Pulsatillae** Kalchauer. III on *Anemone pulsatilla* var. *Holmgreniana*, Esteron and Saskatoon, Sask.
- **punctata** Link. I, II on *Galium triflorum*, Norway House, I on *Galium* sp., Treeshank, Man.
- **punctata** var. *triglochytae* (Linde) Arth. II, III on *Galium triflorum*, Univ., Man.
- **pygmaea** Erikss. II, III on *Oryopsis asperifolia*, near Gimn and seen near Lac du Bonnet, Man. The known range is considerably extended by these collections.
- **Ribis** DC. III on *Ribes toxicaria*, Berens River and Victoria Beach, Man. Kingsmere Lake and Lake Waskesiu, Sask.
- **rubefaciens** Johans. III common on *Galium boreale* across Man. and in Zone 2 in Sask.
- **rubigo-vera** (DC.) Wnt. var. *Agropyri* (Erikss.) Arth. O, I in Sask. as follows: common on *Anemone cylindrica*, on *A. globosa*, Saskatoon, on *Urtica dioica*, Leduc and Saskatoon (also at Medicine Hat, Alberta), on *Ranunculus (Helleborus) cymbalaria*, *Thalictrum flavum* and *T. flavum*, common and on the last host also at Vegreville, Alberta. In Man. this rust (or possibly in some cases the var. *agropyria*) has been collected on *Acacia*

also, *A. rubra*, *Anemone cylindrica*, *A. virginiana*, *Thalictrum dasycarpum* and *T. occidentale*. II, III on *Agropyron dasystachyum*, Saskatoon, Sask. and Peace River, Alberta, on *A. Richardsonii*, Univ. to western Man. and Edmonton, Alberta, on *A. Smithii*, Arcola and Saskatoon, Sask. and Macleod, Alberta, on *A. tenerum*, Brandon, Morden and Winn-peg, Man., Quill Lake, Sask., Lake Louise, Alberta, on *Bromus ciliatus*, Edmonton and Spirit Lake, Alberta, on *B. Porteri* Saskatoon, Sask. on *B. Pampulianus*, Elfron, McHugh, Melfort, Prince Albert and Wadena, Sask., Edmonton, Peace River and Spirit River, Alberta, on *Elymus diversiglumis*, Nausberry, Sask., on *E. Maccanus*, Morris and Winnipeg, Man., Saskatoon, Sask., on *Hordeum jubatum*, Brandon, Morris and Rostin, Man., on *Poa arida*, Brandon, Man., on *Puccinellia tenuiflora*, Broadview, Canora, Carlyle, Saskatoon and Wadena, Sask., on *P. nutkanensis*, Churchill, Man. Cultures with this rust were made by Fraser (21).

Puccinia rubigo-vera* var. *agropyris (Erikss.) Arth. O. I on *Thalictrum dasycarpum*, Indian Head, Sask., on *T. occidentale*, Swift Current, Sask., II, III on *Bromus ciliatus*, Brandon, Man. and Nausberry, Sask., on *B. angustatus*, Brandon and Morris, Man., on *B. pargans*, Neepawa, Man. Cultures were made by Fraser (20, 21, 24). The teliospores are commonly pleuricellular. In Arthur's Manual a few of the collections listed under the previous entry are included with this variety.

— ***rubigo-vera* var. *apocrypta*** (Ell. & Yrco) Arth. O. I on *Thlasium occidentale*, Hartney and Treesbank, Man., on *Phacelia Franchetii*, Selkirk, Man. If the telial stage of this variety has been collected, it is included under var. *Agropyri*.

— ***rubigo-vera* var. *impatiens*** (Arth.) Mains (as in Arthur's Manual). O. I on *Impatiens biflora*, Betty's River, Dauphin and Waggon Springs, Man., II, III on *Hordeum jubatum*, Dauphin and Ste. Rose du Lac, Man., cultured to this host and also to *Elymus canadensis* by Fraser (20, 21).

rubigo-vera* var. *Socalis (Erikss.) Carleton (*P. dispersa* Erikss. & Henn. in part). Common on *Socle cerealis* in Man. and Sask.

rubigo-vera* var. *tritici Erikss. & Henn. Carleton (*P. tritici* Erikss.) Common and sometimes injurious on *Triticum aestivum* in Man. and Sask., occasional on *T. durum* and *T. spelta*.

— ***scabra*** (Ell. & Ev.) Barth. II, III common on *Stipa rosea* in Man. and Sask. Amphispores are abundant, but absent in *P. Stipa*.

— ***scabrella*** Schenck. O. I on *Isis rosea*, Victoria Beach, Man., on *Mossburnia canadensis*, Univ. and Winnipeg, Man., on *Senecio abietis*, Brandon, Treesbank and Univ., Man., Indian Head and Sutherland, Sask., II, III on *Phalaris arundinacea*, Brandon and Swan River, Man., Indian Head and Sutherland, Sask.

— ***Shearardiana*** Kern. III on *Molinia canescens* in western Man., common in Sask., and at Morris, Alberta.

— ***Sorghii*** Schw. II, III common but scarcely injurious on *Zea Mays* across southern Man., and at Imperial and Indian Head, Sask.

— ***Sporobolii*** Arth. O. I on *Lolium pectus* (phorum var. *andinum* (*L. umbellatum*)), Kennedy and Quibella, Sask., coll. B. J. Sellar, perhaps this rust on the same host at Brandon, Man. These apparently are the first Canadian records.

Stipae Arth. O. I on *Chrysopsis brevicaulis*, Beaver Creek, Indian Head and Saskatoon, Sask., on *Lycopodium obscurum*, Selkirk, Man., Beaver Creek, Pike Lake and Saskatoon, Sask., on *Setaria rigida* and *S. spp.* in Sask., II, III on *Stipa comata*, Housay, Rapid City and Treesbank, Man., Watrous, Sask. on *S. spicata*, Elkhorn, Man., Antler, Sask., on *S. comata* var. *intermedia* (S. Tuckerm.) Peace River, Alberta. The aecia are covered by the host leaves and open by a pore, and can thus be distinguished from those of *P. crenatula*.

— ***Tullgreniae*** Jørg. I on *Parthenocissus vitacea*, Cape Merry at Churchill on Hudson's Bay, coll. P. H. Gregory, Aug. 23, 1934. Only one small group of hypophyllous aecia was present, with spores 16-18 × 18-20 μ , spore wall about 1.4 μ thick. This rust is recorded by Arthur in North America only from Kodiak Island, Alaska.

vagina (DC.) Arth. var. ***Epilobii-stragomii*** DC. O, I, II, III on *Epilobium adnatum*, Moose Jaw, and on *Epilobium* sp., Indian Head and Weyburn, Sask. This rust is not known elsewhere in Canada.

— ***venosa*** Farl. III on *Bouteloua curtipendula*, Treesbank, Man., coll. E. Criddle; II, III on *B. gracilis*, Brandon, Man.

- Uromyces Junci** (Desm.) Tul. O, I on *Cornus Flodmanii*, Brandon, Man. and Saskatoon, Sask., on *C. macrophyllum*, Rosthern, Sask., on *C. americana*, Kennedy, Saskatoon and Swift Current, Sask., on *Hieracium petiolaris*, Brandon, Man. and Saskatoon, Sask., on *H. asplenifolium*, Saskatoon, Sask., II, III on *Juncus alar*, Rosthern (Seager Wheeler) and Saskatoon, Sask., on *J. balticus*, Brandon, Oak Lake and Victoria Beach, Man. Saskatoon, Sask., on *J. Dracopis*, Tretheway, Man. on *J. phyllanthus*, Fleming and Saskatoon, Sask.
- ureophilus** (Cragg) Hetsch. I, III on *Trifolium repens*, Univ., Man. apparently this species on *T. hybridum* at Wabow, Sask. *U. ureophilus* is easily confused with *U. trifolii*, of which it may be only a condition with suppressed uredia.
- perigrinus** Hulst. O, I on *Rudbeckia hirtensis*, Brandon, Carman and Dropmore, Man. This rust must remain somewhat doubtful, until teleia are found.
- glaberrimus** Peck. O, I, II, III on *Gaura coccinea*, Wawanesa, Man., Cochin, Estevan, Outlook and Saskatoon, Sask.
- Polygoni** (Pers.) Buckel. II on *Polygonum aviculare*, Winnipeg, Man., on *P. barbatum*, Saskatoon, Sask., O, I, II on *P. arvense*, Carman to The Pas and Winnipeg, Man., III on *P. ramosissimum*, Katrine, Man., on *P. trilobatum*, Regina, Sask.
- prominens** (K.) Pass. O, I, II, III on *Euphorbia* (*E. corollata*) *pygmaea*, Saskatoon, and I, III at Arthur, Sask., on *E. corollata*, Elm Hill, Morden and Univ., Man.
- Psoraleae** Peck var. **argophyllae** (Sacc.) Arth. O, I, III on *Psoralea argophylla*, Assiniboia and Saskatoon, Sask. This and the next variety have their known ranges extended by these records.
- Psoraleae** var. **typica** Arth. O, I on *Psoralea lanceolata*, Tompkins, Sask., and III on the same host at Saskatoon.
- punctatus** Schroet. II on *Oxytropis fragilis*, Battle, Man.
- Rudbeckiae** Arth. & Huh. III on *Rudbeckia hirtensis*, Carman and Dauphin, Man.
- Scirpi** (Pers.) Burr. O, I on *Scirpus acutirostris*, Saskatoon, Sask., on *Scirpus eriophorum*, Rapid City, Man. Saskatoon, Sask., II, III on *Scirpus robustus*, Saskatoon and Union, Sask. Cummins (Myrmec. 27: 640) has recently separated *U. americanus* Speg. from *U. Scirpi*, but the Sask. collections belong to *U. Scirpi*.
- Selphii** (Burr.) Arth. III on *Juncus longistylis*, Saskatoon, Sask. and recorded on this host from Man. at Arthur's Mts., on *J. tenuis*, Pike Lake, Sask.
- strictus** Schroet var. **Medicaginis** (Pass.) Arth. II on *Medicago sativa*, Univ., Man. A little rust of alfalfa was first found in late Sept. and in Oct. 1931, but it has not been found in succeeding years.
- Trifolii** (Hew.) Lév. var. **fallens** (Desm.) Arth. II, III on *Trifolium pratense* and *T. purpureum*, Univ. to Winnipeg Beach, Man. Rust on red clover was first found in Man. in 1922. It has persisted and causes some injury around Winnipeg. Aecia have not been seen. It is not recorded in western Man., although it may have been overlooked; it is not yet known in Sask.
- Trifolii** var. **hybridum** (W. H. Davis) Arth. I, II, III on *Trifolium hybridum* across Man. north to The Pas, in Sask. and at Edmonton, Alberta. Rust of alfalfa clover is widespread; it was collected at Invermay in western Man. in July 1921. Some injury may be caused by this rust. Aecia are common in Man., and have been found as late as Aug. 24; they were also collected at Melfort, Sask.
- Trifolii** var. **Trifolii-repentis** (Lév.) Arth. I, II, III on *Trifolium repens*, Univ. and Winnipeg, Man. The rust of white clover is fairly common around Winnipeg. It was first collected in 1921. Aecia are common. Records of the distribution of this rust in Man. are not available; it is reported from Alberta, but has not yet been found in Sask.
- Zygadeni** Peck. I on *Zygadenus pinnatus*, Camptyle, Alberta, col. A. B. Brinkman.
- Uromyces Amorphae** (Curt.) Schroet. II, III on *Amorpha canescens*, Morden and Stony Mountain, Man., on *A. fruticosa*, Portage la Prairie and Univ., Man., on *A. same*, Stony Mountain, Man. This rust was rather common to *Amorpha fruticosa* grown as a hedge at Portage la Prairie.
- Uromyces Petalostemonis** (Karl) de Toni. III on *Petalostemon alpinophyllum*, Cypress Hills, Sask. The rust may be *U. affinis* Arth., according to G. B. Cummins. In either case, it is a new record for Canada.

AURICULARIALES

Auricularia auricula-Judas (L.) Schroet. On deciduous wood, Berens River, Victoria Beach eastward.

Platyglea fenicola Schroet. On horse dung in culture, Univ. Identification verified by Gladys E. Baker. She found the spores to be slightly under the quoted size, that the hypobasidia were still morphologically distinct even when the epibasidia were mature, and that the mycelium has clamp connections.

Saccoblastia pinicola Boud. & Galz. On fallen *Populus*; Victoria Beach, det. M. J. M. Nobles and Irene Monte, verified by Drs. Linder and Rogers; studied also by Gladys E. Baker (Ann. Missour. Bot. Gard. 23: 88), who has transferred it to *Helioglossa*. This is the first American record of this species.

TREMELLIALES

Eichleriella apiculosa (Berk. & Curt.) Burt. Five collections on bark of *Populus*, Cross Lake, Sour River and Univ.

Egidia alba (Lloyd) Burt. On deciduous wood, Winnipeg.
glandulosa (Bull.) Fr. "Witches' butter." Common on branches of *Populus*, *Salix*, etc. in Man.

Naematelia nucleata (Schw.) Fr. On dead branches of *Betula alba* var. *papyrifera*, *Populus*, *Vitis americana* and *Viburnum*, Univ., Victoria Beach.

Sebacina calcea (Pers.) Bres. On fallen branches of *Picea*, *Ribes*, etc., Univ. to Victoria Beach and eastward in Man., on *Populus balsamifera*, Lake Waskow, Sask.; det. J. Mounie and E. M. Wakefield.

— *incrustans* (Pers.) Tu. Not uncommon, encrusting grass, twigs, etc., Univ. It is evident that the fungus called *Pyrenopeziza subcuboides* Lloyd (Mycological Notes, 67: 1143) was young or abnormal *S. incrustans*.

Tremella lutescens Pers. On *Abies secura*, *Betula*, etc., Berens River, Kenora, Norway House, Univ.

mesenterica (Retz.) Fr. On decaying wood, Norway House, det. C. G. Lloyd.

reticulata (Berk.) Farlow. On the ground in woods, Univ., det. C. G. Lloyd as *T. clauseniana* Lloyd, Winnipeg, det. W. C. Coker.

— *saccharina* Fr. var. *foliacea* (Liv.) Bres. (*Licofolia foliacea* Bres.). On bark of dead *Abies balsamea* and *Pinus Bankiana*, Berens River to Clear Lake and Kenora.

— *viscosa* Berk. On fallen *Populus*, Univ.

Tremellodon gelatinosum (Scop.) Pers. Occasional on decaying stumps, etc. of conifers; Victoria Beach eastward.

Tulasnella Eichleriiana Bres. On fallen deciduous wood, Univ., det. M. J. M. Nobles, on decayed wood of *Betula alba* var. *papyrifera*, Victoria Beach, det. L. O. Overhulse. D. P. Rogers (Ann. Mycol. 31: 185) includes *T. Eichleriiana* as a synonym of *T. rufa* (Quél.) Boud. & Galz.

DACRYOMYCETALES

Calocera carnea (Batsch) Fr. Common on dead *Betula*, *Populus*, etc.; Clear Lake, Univ. northward. Spore discharge in specimens from Winnipeg described and illustrated by Buller (82, vol. II).

viscosa (Pers.) Fr. Recorded from Kenora.

Dacryomyces aurantius (Schw.) Farl. Common on coniferous wood, and on railway ties everywhere in Man., probably this species at Lake Waskow, Sask.

— *deliquescentis* (Bull.) Duby. On old coniferous wood, Norway House to Univ. See Buller (94 and 82, vol. II).

— *Ellisi* Coker. On bark, Kenora.

— *palmatus* (Schw.) Burt. On a conifer, Clear Lake.

Guepinia elegans Berk. & Curt. On fallen *Acer Negundo*, Univ. Fruit-body perished then apothecate, tan-colored, spores 13-18 × 6-7 μ, yellowish-lyalline. Finally 4-celled.

— *helvelloides* (DC.) Fr. (*Gyrocotylus rufus* (Jacq.) Bref.) In deep mossy woods, Clear Lake, Pinawa. The three collections examined have been alike in producing an erect apothecate or mugwort-shaped fructification 2-8 cm. tall, including stalk, and 2-4 cm. wide,

pileus and stem soft, translucent whitish, becoming very pale yellow-tan, lamella with long sterigmata; mature spores $9-11 \times 4-6 \mu$. G. W. Martin considers it a form of *G. helvelloides*, and points out that Lloyd (Myc. Notes, Fig. 2178) illustrates a similar form. Martin (Amer. Journ. Bot. 23: 628) decides that the correct name is *Pholiotis helvelloides* (Fr.) Martin.

AGARICALES

*Telephoraceae**, including *Exobasidium* and *Hypochnus*

- Aleurodiscus ascrinus** (Pers.) v. Höhn & Litsch. On bark of *Quercus macrocarpa*, L. v., coll. I. Mounse, det. M. E. Nobles.
- **amorphus** (Pers.) Rabenh. On bark of a conifer; Berens River and Kenora, det. E. M. Wakefield and M. E. Nobles.
- **cerussatus** (Pers.) v. Höhn & Litsch. Common on dead *Populus*, *Salix*, *Ulmus americana* and other deciduous wood; L. v. Burt records it only from Europe, Manitoba and Oregon; he wrote (May 4, 1921) that Manitoba specimens sent him were the first American specimens he had seen. Fourteen collections are now in the herbarium at Winnipeg.
- **griseocanus** (Pers.) v. Höhn & Litsch. On bark of old *Quercus macrocarpa*, *Salix pennsylvanica* and *Viburnum*, Univ.
- Coniophora farida** (Fr.) Karst. A somewhat doubtful specimen on fallen log of *Picea* sp.; 13 miles east of Beausejour.
- **hypoxidea** (Pers.) Fr. On dead, occasionally on charred, wood of *Picea* sp., *Pinus Banksiana*, *Populus* spp., etc., ten collections all in or near coniferous areas around Lake Winnipeg and in eastern Man.
- cerebella** Pers. (= *pusans* (Schum.) Karst.). On fallen *Picea* sp., *Populus* sp., and *Thuja occidentalis*, L. v. eastward. This species was very abundant on poplar poles supporting a root cellar, and appeared to contribute to their early collapse.
- Kahnus** (Peck) Burt. On old wood of *Pinus Banksiana*, 13 miles east of Beausejour. This is a rare species.
- olivacea** (Fr.) Karst. Common on decaying *Abies balsamea*, *Picea* sp., occasional on *Populus* in coniferous areas; Berens River, Clear Lake and eastern Man.
- **polyporoides** (Berk & Curt.) Burt. On coniferous wood; Kenora, Victoria Beach.
- **suffocata** (Peck) Maser (= *Hypochnus farobryus* Dearness & Bushy, 71: 60, proves to be a synonym). Common on old wood or boards of *Picea* sp., *Pinus* sp., less common on *Acer Negundo*, *Populus* sp., Clear Lake, Univ. to Victoria Beach and eastward.
- Corticium albobrunneum** (Bres.) (Overh.). On old root of *Picea*, Whitemouth.
- **brachnoideum** Berk. On old coniferous wood and *Populus*, etc., Norway House, Univ., Victoria Beach.
- argentatum** Burt. On branch of *Fraxinus pennsylvanica*, Univ. Previously known from Nebraska.
- **Barkleyi** Cooke. On old wood of *Picea*, 13 miles east of Beausejour.
- bicalor** Peck. Three collections on very decayed *Abies balsamea* etc., Kenora, Victoria Beach.
- bombycinum** (Sommerf.) Bres. On old coniferous wood, Clear Lake.
- **batrydeum** Overhouts. On old bark of *Pinus Banksiana*, Victoria Beach, on bark probably of *Populus*, Univ. Described from *Pennywina* (Mycologia, 26: 510). Rogers (Univ. Iowa Studies Nat. Hist. 17: 15) places *C. batrydeum* with *Batrachium coronatum* (Schroet.) Don.
- centrifugum** (Lév.) Eros. On bark of *Quercus macrocarpa* and wood of *Viburnum*, etc., Stony Mountain, L. v.
- **confusum** Fr. On dead limb of *Ulmus americana*, Univ.
- **crustaceum** (Karst.) v. Höhn & Litsch. Common on bark and wood of *Ontogaea*, *Fraxinus pennsylvanica*, *Populus*, *Prunus*, *Quercus macrocarpa*, *Viburnum*, *Salix*; Univ. and vicinity. On uneven substrata the fungus may resemble resupinate *Hydnaceae*.
- effusum** Cooke & El. On deciduous and coniferous wood, Beausejour and Kenora.

* Recent collections have been studied carefully by Drs. Mildred Nobles and Irene Mounse, who have forwarded parts in many cases to Dr. L. O. Overholts or Miss E. M. Wakefield. These collections are listed without the notes on characters of the fungi, so that these four specialists may publish their own observations.

- Corticium fenestratum** Overholts (*Cenophora* voss Burt). On old *Asar* Negundo, *Populus balsamifera* *f. laurifolia* americana, Univ. on *Picea*, Berens River, on deciduous wood, Victoria.
- **filicinum** Boud. On old *Thuja occidentalis*, Winnipeg.
 - **flavescens** (Bonar) Masson. On decayed *Populus*, Clear Lake.
 - **galactinum** (Fr.) Burt. Common on old *Abies balsamea* and other coniferous bark or wood; Victoria Beach, eastern Man. one collection on old deciduous wood, Univ.
 - **incrustans** v. Holm & Litsch. On deciduous wood, Univ.
 - **involutum** (Schw.) Burt. On deciduous wood, Kenora.
 - **lutescens** Berk. On *Populus*, etc., Beausejour, St. Norbert, Univ.
 - **lutea** Pers. On branches of *Pinus strobus*, Univ. on deciduous branch, Kenora.
 - **lividoceruleum** Karst. On dead conifers, Birds Hill and Norway House.
 - **lividum** Berk. On *Populus*, etc., Univ. and Winnipeg.
 - **pelluculare** Karst. On old *Abies balsamea* *fruits* also var. *pyramifera* *Juniperus*, *Picea* sp., *Pinus Banksiana* and *l. resinosa* americana. Berens River to Winnipeg eastward.
 - **polygonatum** Pers. Light collection on bark of *Populus*, Univ. eastward.
 - **porosum** Berk. & Curt. On old *Populus*, Univ.
 - **radiatum** Fr. On bark of conifer; Victoria Beach.
 - **roseum** Pers. On old bark, *Abies balsamea*, etc., St. Mary Mountain to Univ.
 - **rubellum** Burt. On old *Populus* and *Quercus macrocarpa*, Univ.
 - **scutellare** Berk. & Curt. On twig of *Populus*, Univ.
 - **septentrionale** Burt. On old *Abies balsamea* also var. *pyramifera* *Juniperus*, *Picea canadensis*, etc., Univ. also at Kenora. Type collected at Univ., Oct. 19, 1922.
 - **sociatum** Burt. On bare coniferous wood, Norway House (not on bark of *Thuja occidentalis*, as one might infer from Burt, Ann. Missouri Bot. Gard. 13, 1920).
 - **Solani** (Fr.) & Delher. Boud. & Gale. Not uncommon on lower stems of *Sorbus heterophylla*; Man. and Sask. on stems of *Juniperus radiata*, Winnipeg. Thus the "perfect" stage of *Rhizoctonia Solani*, is often included under *C. conios*.
 - **subcoronatum** v. Holm & Litsch. On decayed wood of *Abies balsamea* or Pers. or both, Berens River, Norway House, Victoria Beach.
 - **vagum** Berk. & Curt. On bark and wood of *Abies balsamea*, *Pinus Banksiana*, *Thuja occidentalis* var. *Picea*, Berens River, Norway House, Victoria Beach, eastern Man.
 - **vellerum** Ell. & Cragg. On old *Populus* and *Salix*, Univ. and Winnipeg, Man., Saskatoon, Sask., coll. 1 Moscow.
- Crataegus Cantharellus** (Schw.) Fr. Under conifers, Ingolf, Victoria Beach.
- **clavatus** Pers., Fr. In coniferous woods, Berens River, Clear Lake, Victoria Beach. 10-13 × 4-5 μ .
 - **lutescens** (Pers.) Fr. Amongst mosses or near logs, Lat du Bonnet, Norway House. Pileus infundibuliform, watery chestnut brown, hymenium and stem orange yellow, spores spindle-shaped, 8-12 × 5-7 μ .
- Cyphella capula** (Holm) Fr. On old stems of *Pinus strobus*, Univ.
- **fasciculata** (Schw.) Berk. & Curt. On old *Abies balsamea* (very rare), *Populus*, etc., Univ. to Victoria Beach and eastward. 7-9 × 2-3 μ .
 - **galata** (Schw.) Fr. On mosses & lichen. Plants gray, 4-12 mm. wide, hymenium somewhat wrinkled, spores 7-10 × 4-6 μ , pip-shaped.
 - **minutissima** Burt. Common on bark and wood of old *Populus*, Clear Lake, Univ. and Victoria Beach, Man., St. Gregor, Sask. 5-6 × 2-4 μ .
 - **muscinosa** Pers. ex. Fr. On mosses; Victoria. Plants white, hymenium drying buff, spores apparently c. 5 × 3 μ .
 - **Tillae** (Peck) Cooke. Very common on dead branches of *Thuja americana* along the Red River.
 - **Trachychaeta** Ell. & Ev. On fallen leaves of *Quercus macrocarpa*, Univ., Nov. 1. Plants $\frac{1}{2}$ -1 $\frac{1}{2}$ mm. wide, saucer-shaped, attached by narrow base, mycelial threads or hairs rough, sometimes almost spiny, spores 6-7 × 2 $\frac{1}{2}$ -3 μ . This seems to fit the imperfectly described *C. trachychaeta*.
- Cyrtidia salicina** (Fr.) Burt. Common on dead branches of *Salix*, Univ. eastward. Conspicuous by its red color.

- Exobasidium** Ledi Karst. On *Ledum gracilidictum*, Lake Waskesiu, Sask. No North American records of an *Exobasidium* on *Ledum* were found. It may be a form of *E. Vucantii*.
- **Vaccinii** (Fackel) Wors. On *Arctostaphylos uva-ursi*, across Man. and at Sutherland, Sask. On *Asclepias* sp. W. Winnipeg on *Vaccin.* spp., around Lake Winnipeg.
- Hymenochaete agglutinans** Ell. Between branches of *Amelanchier alnifolia*, etc., Univ., Victoria Beach. The fungus "agglutinates" the branches together.
- bedaeferuginea** (Mont.) Lév. On dead branches of *Alnus incana*, etc., Berens River and Indian Bay.
- cinnamomea** (Pers.) Hens. Common on old *Populus*, *Symphoricarpos occidentalis*, etc., Berens River, Clear Lake and along the Red River.
- corrugata** (Fr.) Lév. On branches of *Corylus*, etc., Univ.
- Curtisii** (Berk.) Morgan. On dead branches of *Quercus macrocarpa*, common along the Red River.
- episphearia** (Schw.) Mance. On twigs, Univ.
- rubiginosa** (Dicks.) Lév. On bark of frondose tree or shrub, Winnipeg, det. E. A. Burt.
- **tabacina** (Sow.) Lév. On dead branches, *hemora* Victoria Beach.
- tenuis** Berk. On decaying *Abies balsamea* and *Picea*, Clear Lake, Victoria Beach.
- Hypochothecium canadensis** Burt. On old decaying wood, Univ., on charred *Pinus Banksiana*, Lac du Bonnet, on old dung along the Hudson's Bay Railway.
- **cervinus** Berk. On old bark, Norway House, det. E. A. Burt. Type from Washington.
- **cinereascens** Karst. On *Populus*, Lac du Bonnet.
- coriarius** Peck; Burt. On decaying *Betula alba* var. *papyrifera*, *Picea*, *Populus*, and *Salix*, Clear Lake, Univ., Victoria Beach.
- echinosporus** (Ell.) Burt. On *Pinus Banksiana*, *Populus*, and other old deciduous wood, Univ., Winnipeg, eastern Man.
- epiphyllus** (Schw.) Burt; *H. granulosus* (Peck) Burt. On deciduous wood, Univ. on decaying bark, Kenora.
- ferruginea** (Pers.) Fr. On old *Populus*, etc., Univ. Victoria Beach.
- [**flavobrunneus** Dearness & Bisby. See *Cossaphora suffocata*]
- fumigatus** Fr. On fallen *Abies balsamea*, *Prun. canadensis*, *Pinus Banksiana*, *Populus*, etc., Clear Lake, Norway House, Univ. eastward.
- fuscus** (Pers.) Fr. On aged, decayed, wood 13 miles east of Beauséjour.
- **isabellinus** Fr. On old *Populus*, Beauséjour, Clear Lake.
- **pallidofulvus** (Peck) Burt; *H. subferrugineus* ex Burt. On decayed *Betula alba* var. *papyrifera*, *Populus*, and leaf mold, Clear Lake, Univ., Victoria Beach.
- **pennsylvanicus** (Berk. & Curt.) Burt. On decayed *Picea*, *Populus*, etc., Univ. to Victoria Beach eastward.
- **pilosus** Burt. On decayed ?*Populus*; Univ. Type from Wisconsin, apparently rare.
- **rubiginosus** Bess. On old *Picea canadensis*, Clear Lake, on decayed ?*Populus*, Univ. A rare species.
- **spongiosus** (Schw.) Burt. On moss, Beauséjour, on bark of frondose tree or shrub, Univ.
- **spongiosus** var. **spendurus** (Burt) Boud. & Gals. On decayed ?*Picea*, Victoria Beach.
- **umbellinus** (Fr.) Quél. On old *Acer Nipenside*, ?*Abies*, *Fraxinus pennsylvanica*, charred *Pinus Banksiana*, *Populus*, Clear Lake, Univ. to Victoria Beach eastward.
- Pentiochophora Alleecheeri** Bess. On old bark of *Populus*, Univ.
- alutaria** Burt. On old *Abies balsamea*, *Picea* and *Marix leucosa*, Berens River, Victoria Beach eastward.
- aurantiaca** Bess. On fallen or standing dead branches of *Abies balsamea*, one collection evidently on *Betula*, Berens River, Kenora, Norway House.
- candida** (Pers., Lynan, associated with the conical stage *Aegeria candida* Pers. On old wood, Univ., det. E. M. Wakefield.
- **carnea** Burt. On old bark of conifer (?*Picea*), Vivian.
- **cinerea** (Pers.) Cooke. Very common on dead branches of *Arctium*, *Betula alba* var. *papyrifera*, *Amelanchier alnifolia*, *Fraxinus pennsylvanica*, *Quercus macrocarpa*, *Salix*, *Symphoricarpos occidentalis*, *Ulmus americana*, etc., Berens River to Univ. eastward, on bark of *Pinus Banksiana* near Marchand.
- **coccineofulva** (Schw.) Burt. On old deciduous wood, Univ.

- Peniophora crassa** Burt. On old *Populus*, Univ.
 — *cremas* Bess. On old *Elaeagnus argentea*, *Pinus Banksiana* and on deciduous wood, Souris, Swan River, Univ., Vivian, Victoria Beach.
 — *gigantea* (Fr.) Muecke. On old deciduous wood, Univ.
 — *glebiflora* Bess. On *Picea* and *Pinus Banksiana*, one collection on *Salix*, Beauséjour, Berens River Norway House.
 — *guttulifera* (Karst.) Sacc. Five collections on old *Acer Negundo*, *Populus* and *Salix*, Univ.
 — *incarnata* (Pers.) Karst. On old *Fraxinus pennsylvanica*, etc., St. Norbert, Univ.
 — *livida* Fr. ex Burt. On fallen *Picea*, east of Beauséjour.
 — *longispora* (Pat.) v. Höhn. On old *Acer Negundo*, *Populus*, *Salix* and *Ulmus americana*, Victoria Beach and along the Red River.
 — *ludoviciana* Burt. On *Fraxinus pennsylvanica*, Univ. A rare species.
 — *mutata* Peck. Bess. On old bark of *Populus*, Univ.
 — *nuda* (Fr.) Bess. On old branch of *Juniperus communis*, Victoria Beach, on bark of *Tilia americana*, Univ.
 — *odontioides* Burt. Type collected on old ironstone wood, Swan River. L. W. Miller considers this to be a synonym of *Odothis stipitata*.
 — *pacifica* Overholts. On old bark or wood of *Abies balsamea*, *Picea* and *Populus*, Beauséjour, Victoria Beach.
 — *pubera* (Fr.) Sacc. On old *Fraxinus pennsylvanica*, *Populus*, *Quercus macrocarpa*, and *Salix*; Univ.
 — *Roumeguieri* Bess. On old *Salix amygdaloides*, Univ.
 — *Sambuci* (Pers.) Burt. On *Fraxinus*, *Juniperus*, and on teeth of old Hydnaceae on *Salix*; probably this fungus on *Carex* and *Typha*, Berens River, Kenora, Univ.
 — *sanguinea* (Fr.) Bess. On old coniferous wood; near Kenora.
 — *subcrema* v. Höhn and Litsch. On stems of *Symphoricarpos occidentalis* and on old bark of ironstone trees, Univ.
 — *subsulphurea* (Karst.) v. Höhn & Litsch. On cedar, Norway House (material all sent to Burt).
 — *tenue* (Pat.) Muecke. On old *Pinus Banksiana* Sandhuas Forest Reserve; det. M. K. Nobles. Burt records it as rare.
 — *velutina* (DC.) Cooke. On bark and wood of *Populus*, Univ.
Solenia anomala (Pers.) Focke. Common on old *Betula alba* var. *papyrifera*, *Corylus*, *Prunus*, etc., Norway House, Univ. eastward.
 — *filicina* Peck. On old patches of *Pteris nodiflora*, Univ. Burt lists Peck's type only.
Stereum abietinum Pers. On coniferous wood, Clear Lake.
 — *cinerascens* (Schw.) Muecke. Common on old *Acer Negundo*, *Populus*, etc.; along the Red River; on *Acer* sp., Indian Head, Sask.
 — *fasciatum* Schw. On old *Betula alba* var. *papyrifera*, *Populus*, etc., Minitaki, Norway House, Univ.
 — *frustulosum* (Pers.) Fr. On old wood in Man., exact locality unknown.
 — *fuscum* (Schrad.) Quél. Common on *Populus*, etc. Victoria Beach, along the Red River and eastward.
 — *gussoneum* Fr. On bark of deciduous trees (*Quercus*) along the Red River.
 — *hirsutum* (Wild.) Fr. On *Betula alba* var. *papyrifera*; Saskatoon, Sask., on old wood; Kenora and Univ., Man.
 — *ochraceoflavum* Schw. Reported by C. H. Kauffman as among a lot of specimens sent him from Norway House.
 — *purpureum* Pers. On *Betula alba* var. *papyrifera* in Man. and at Saskatoon, Sask.; on *Populus*, *Prunus*, *Pyrus baccata*, etc., in Man. This fungus causes "Silver-leaf" of cultivated apples and plums, and is somewhat injurious at Morden and Winnipeg. The fungus has been found fruiting on apple branches pruned out and thrown in a brush-pile.
 — *radiatum* Peck. On old wood, Kenora.
 — *rufum* Fr. Very abundant on dead branches of *Populus* in Man., found also in Sask.; rare on *Salix* sp., Univ., Man.
 — *rugosiusculum* Berk. & Curt., perhaps only a form of *S. purpureum*. On old wood; Kenora, Norway House, Man.; on *Betula alba* var. *papyrifera*, Saskatoon, Sask.

- Stearum sanguinolentum* (Alb. & Schw.) Fr. On Pines, Berens River; on undetermined conifer; Kenora, Victoria Beach.
versiforme Berk. & Curt. On Salix, etc.; Roblin, Univ., Vata.
Thelophora caryophyllae (Schaff.) Fr. On sandy soil in coniferous woods; Norway House, Victoria Beach.
myiobacae (Pers.) Fr. In woods, Kenora, Norway House, Univ.
multipartita Schw. In woods, Univ.
palmaria (Scop.) Fr. On the ground in broadleaf woods, Univ.
terrestris (Ehrenb.) Fr. On decaying or charred wood of *Pinus Banksiana*, etc., Norway House, Victoria Beach eastward.

Clavicipites

- Clavaria abietina* Pers. In coniferous woods; Ingolf, Victoria Beach.
apiculata Fr. Common on coniferous wood across Man.
thyassidea Pers. On debris in mixed woods, Clear Lake.
crustata (Holmsk.) Pers. Common in woods Univ. eastward. The form *cinnerea* is especially common in deciduous woods along the Red River.
decurrens Pers. On moss in sandy woods of *Pinus Banksiana*, east of Beauport.
flava Schaff. On old wood, Clear Lake, Victoria Beach.
formosa Pers. In mixed woods; Clear Lake.
fumosa Pers. In woods, Kenora.
ligula Schaff. Common in coniferous woods, Norway House to Victoria Beach eastward.
muscoidea L. On decayed wood, Lac du Bonnet.
Patouillardii Brev. Common in deciduous woods, Univ. The mycelium whitens the leaf-rod.
pestilialis (L.) Fr. In coniferous woods, Clear Lake and eastern Man.
pulchra Peck. On bare soil, Norway House; det. E. A. Burt.
pyxidata Pers. Common on old wood, Univ. north and eastward. See Buller (82, vol. II).
stricta Pers. On decayed wood, Norway House to Univ.
pusilla Fr. On leaf-wood, Victoria Beach, determined with doubt by W. C. Coker.
Piatillaria telaruleta Ell. On leaves of *Fraxinus pennsylvanica* and *Populus balsamifera* recently fallen and caught on branches of shrubs, Univ., Sept. 23. Spores mostly $10 \times 3\frac{1}{2}$ - $4\frac{1}{2}$ μ . *P. coccinea* Pers. is similar.
eulagena (Mont. & Fr.) Berk. On dead leaves of *Poa pratensis* and other grasses, Univ. Plants c. 1 mm. high, whitish, clavate, spores hyaline, irregular, rounded, $4-6\frac{1}{2}$ μ .
edeneae (Pers.) Fr. On dead stems of *Arctium*, *Convolvulus sepium* and *Urtica gracilis*, Univ. A fine blue species, red and shining, spores $10-11 \times 6\frac{1}{2}$ μ .
typhuloides (Peck) Burt. On old stems of *Eupatorium angustifolium*, Norway House. Plants small, waxy-white.
Pterula penicillata Berk. in Lloyd. In woods, Whitemouth, det. C. G. Lloyd, Clear Lake, det. as probably this species by W. C. Coker.
Typhula siliformis (Bull.) Fr. On fallen leaves of *Populus*, etc., Univ., det. E. A. Burt.
gyrana (Batsch) Fr. From sclerotia on dead leaves of *Ulmus americana*, etc.; Univ., det. E. M. Wakefield.
Thigicola Killerm. On decaying deciduous wood, Univ. Plants whitish to yellowish; spores c. $6 \times 2\frac{1}{2}$ μ . Seems to fit the description in Zeta. Pilskunde, 18: 103.
phaeorrhiza (Reich.) Fr. Abundant in sawdust and soil in an ice-house, Univ. Slender yellowish-brown Typhulae arise from orange-brown sclerotia up to 6×3 mm., spores $10-12 \times 4-6\frac{1}{2}$ μ .

Hydnaceae

- Auriscalpium vulgare* S. F. Gray (*Hydnum Auriscalpium* (L.) Fr.). Not uncommon from more or less buried cones, Clear Lake, Victoria Beach and eastern Man.
Caldeasella ferruginosa (Fr.) Bacc. On old *Populus*, etc.; Victoria Beach, three collections.
viridis (Alb. & Schw.) Pat. On old bark of *Abies balsamea*, Victoria Beach.
Calodon caeruleum (Horn.) Quél. Under conifers, Norway House.
ferrugineum (Fr.) Quél. (probably; near *C. scrobiculatum*). In woods; Ingolf.

- Caledon varicoscolor** (Berk.) Quél. In coniferous woods, Ingolf, Norway House. Determined as *Hydnum rosaceum* Schultz, which Boudot and Gault exclude under *C. immersum*, also stated to be the same as *H. corymbosum* Schaeff., but Boudot and Gault keep that species separate.
- velutinum** (Fr.) Quél. Common on the ground in coniferous woods, Victoria Beach eastward.
- zonatum** (Batsch) Quél. In mixed woods, Ingolf, Ont., Lake Winnipeg, Sask.
- Dentinum repandum** (Fr.) S. F. Gray. Common in coniferous woods, Norway House to Victoria Beach eastward.
- Grandinis Brinkmannii** (Bres.) Boud. & Galt. On old *Populus*, Univ.
- **farinacea** (Fr.) Boud. & Galt. On old deciduous wood, Univ.
- **halvetica** (Pers.) Fr. On fallen bark of *Ulmus americana*, Winnipeg.
- Merium coralloides** (Fr.) S. F. Gray. Not common farther, and probably at Victoria Beach.
- Laccinum** (Leers) Batsch. Ornamental on old wood, Clear Lake, Univ., Victoria Beach. Spores from spore prints 4-4½ × 3½-4 μ, smaller than in *H. coralloides*.
- Hydnum albonigrum** Berk. On the ground, Victoria Beach. These seven species left in the old genus *Hydnum* doubtless have been as well as transferred to other genera.
- caryophyllum** Berk. & Curt. In mixed Park, Winnipeg, det. J. A. Bous.
- ferrugipes** Curt. In coniferous woods, Victoria Beach. A fine species, percon large, laminae 2 mm. thick, then straggling, spores pallid at the tip, stem rarely brown, spores rough, subglobose, 4-5 μ.
- **floriforme** Schaeff. Victoria Beach, habitat not noted.
- **Kauffmanni** Berk. On old wood, Winnipeg, det. C. G. Lloyd who (Myc. Notes, 67, 1144) considers it probably a synonym of *H. (Strockerium) puberulum*.
- **marahula** Fr. Under conifers, Norway House, det. E. A. Burt.
- **scrobiculatum** Fr. On the ground in mixed woods, Victoria Beach.
- Mycronella minutissima** Berk. On bark of numerous tree, Winnipeg. A. H. R. Buller collected a small amount of this species on Oct. 16, 1909, on the bark of a standing, probably living, tree. It was determined by C. F. A. Sacc. It has been sought many times since without avail.
- Odontia alutacea** (Fr.) Boud. & Galt. On old bark of *Taxus canadensis*, West Hawk Lake.
- **arguta** (Fr.) Quél. Common on old tree *Aspen*, *Populus*, etc., Univ., Winnipeg.
- **bicolor** (Fr.) Bres. On old wood of *Populus*, Berens River.
- **clivata** (Berk. & Curt.) I. W. Miller. On decaying wood, Victoria Beach.
- **crustacea** (Fr.) Quél. On old *Populus*, etc., Univ.
- **umbriata** (Pers.) Fr. On decaying *Aspen*, *Populus*, etc., Kenora, Univ., Winnipeg.
- Bononia** Boud. & Galt. On decaying wood, Manitoba. Dr. Miller writes that this species was not previously recorded for North America.
- fusco-atra** (Fr.) Bres. Common on old *Populus*, etc., Swan River, Univ., Winnipeg.
- hydroides** (Hook. & Masser.) Peck. On old bark, Univ., Victoria.
- **lactea** Karst. (sensu Litschauer). On old *Populus*, Univ.
- **livida** Bres. On old deciduous wood, Univ.
- **papillosa** (Fr.) Bres. On deciduous wood in Man. probably at Univ.
- **qualitral** Boud. & Galt. On decaying wood, Univ.
- **setigera** (Fr.) L. W. Miller (*Phanophora setigera* (Fr.) Bres., see also *P. odontoides*). On *Aspen*, *Aspen*, *Aspen*, *Populus*, etc., Berens River, Kenora, Univ.
- **unda** (Fr.) Bres. On old *Populus*, Univ.
- Oxydonia albocincta** (Mong.) I. W. Miller. On *Abies balsamea* and on old *Polyporus Schweinitzii* at base of *Abies balsamea*, Berens River, Victoria Beach.
- Istanodon** (Pers.) I. W. Miller. On old deciduous wood, Univ. Spores not found.
- Phlebia merismoides** Fr. On old deciduous wood and bark, Kenora, Univ.
- **strigososonata** (Schw.) Lloyd. Common, especially on fallen *Populus*, also on *Betula*, *Pyrus*, etc., along the Red River, Victoria Beach.
- Radulum cassarium** (Mong.) Lloyd. Common on *Populus*, etc., Univ., Victoria Beach, eastern Man.
- **spatulatum** (Fr.) Bres. On old *Aspen*, *Populus*, etc., Univ., Winnipeg.

- Sarcodon fenestratum** (Karst.) Boerd. & Gale In coniferous woods, Ingolf, Victoria Beach.
This species has a bitter taste.
- **imbricatum** (Fr.) Quél. In coniferous woods, Clear Lake, Victoria Beach and eastern Man.
- **Underwoodii** Banker. Under conifers, Victoria Beach.
- Steccherinum oshaceum** (Fr.) S. F. Gray Common on wood of *Populus* and other deciduous trees, Univ. to Victoria Beach eastward.
- **pulcherrimum** (Berk. & Curt.) Banker On old *Betula alba* var. *papyrifera*, etc., Victoria Beach.
- **pusillum** (Bret.) Banker On branches of frondose tree or shrub; Victoria Beach.
- **septentrionale** (Fr.) Banker. On old *Betula alba* var. *papyrifera* at Victoria Beach, on *Acer Negundo* at Winnipeg (Illustrated and described by Bulter, 82, vol. II), rarely seen in Man.
- setulosum** (Berk. & Curt.) L. W. Milder On old wood, Swan River. Apparently known only from Abkhazia, Iowa, and west central Manitoba.

Polyporaceae

- Daedalea confragosa** (Bolt.) Fr. Common on *Salix* in eastern Man. The form known as *Trametes rubescens* Fr. is also present. *D. confragosa* may be a "winter annual" in Man. (82, vol. II 1, 7).
- **unicolor** (Bull.) Fr. Common on *Acer Negundo* in Man., less common on other dead deciduous trees, on *Abies balsamea*, Brecken River and Clear Lake, Man., on *Betula alba* var. *papyrifera* and *Populus tremuloides* in Sask. A fallen *Acer Negundo* may become covered on the lower side along the whole length of the trunk. Bulter and Cameron (1906) found that *D. unicolor* in the dry condition kept its vitality in the dark at room temperature for over eight years.
- Favos canadensis** Riets. On dead branches of *Acer Negundo*, *Salix* and other deciduous trees in Man., on *Betula alba* var. *papyrifera*, Katopora, Sask.
- Fistulina hepatica** (Schw.) Fr. One collection on *Quercus macrocarpa*, Headingly, Sept., coll. Dr. W. J. Grant.
- Formes appplanatus** (Pers.) Walsl. Common on *Populus* and other deciduous wood in Man. and Sask.
- **conchatus** (Pers.) Gill. On dead *Viburnum Lentago*, 1 nov.
- **conustus** (Wintn.) Gill. Occasional along the Red River on the bark of trunks of dead *Acer Negundo*.
- **fomentarius** (L.) Gill. Common on trunks of *Betula alba* var. *papyrifera*, occasional on *Populus tremuloides*, in Man. and Sask. Illustrated and discussed by Bulter (82, vols. II and IV).
- **fulvus** (Scop.) Gill. (f. *passerinus* (Pers.) Lloyd). On *Prunus americana*, Meida, Univ.
- **ignarius** (L.) Gill. Common and often gregarious on *Betula alba* var. *papyrifera* and *Populus tremuloides* in Man. and Sask., also on *Salix* spp. in Man. and on these species and *Betula fontinalis* in Sask. Illustrated, and an investigation of spore discharge in Man. reported, by Bulter (82, vol. II 113).
- **ignarius** var. **negricans** Fr. Also common on *Betula alba* var. *papyrifera* and *Populus* in Man. and Sask.
- **Pini** (Thore) Lloyd var. **Abietis** Karst. On *Picea* around Lake Winnipeg and eastward.
- **piniicola** (Svond.) Cooke. Common on dead trunks of conifers including *Abies balsamea*, *Picea canadensis* and *Pinus* spp. in Man. and Sask. A form with paler, unvarnished pilei is common on *Populus balsamifera* in coniferous areas in Man., and has been found on *P. tremuloides* and *Betula* sp. in northern Sask.
- Rhizis** (Schumacher) Cooke. One collection at the base of *Ribes vulgare*; Univ.
- scutellatus** (Schw.) Cooke. Not uncommon on dead branches of *Acer Negundo*, *Asiaticarhizis albidifolia*, *Colostrus canadensis*, etc., in Man.
- **suberosus** (Walt.) Overholts (Trametes suberosa West, T. canescens Auct. Amer.) Common on dead *Abies balsamea* and other coniferous wood, such as railway ties, in Man. and northern Sask.
- Lenzites betulina** (L.) Fr. Common on *Betula alba* var. *papyrifera*, occasional on *Populus*, in Man.

- Lenzites sapinaria** (Wulf) Fr. Common on coniferous woods in Man. and Sask. A collection from Swan River with very thin piles may possibly belong to *L. abietina*.
- trabea** (Pers.) Fr. On deciduous or sometimes on coniferous wood in Man. This and the preceding species were studied by Dr. Morgan and Miss Maize (Can. J. Research, C 14: 215).
- Merulius ambiguus** Berk. On bark of conifer, southeastern Man., coll. I. L. Connors, det. E. A. Burt.
- **aurus** Fr. On fallen Pines, Clear Lake on Prince Rupert, Victoria Beach, det. Dr. Morgan.
- **confusus** Schw. Occasional on old deciduous wood, Univ.
- **corium** Fr. On stumps of deciduous tree or shrub Univ., det. E. A. Burt.
- **fugax** Fr. On old *Prunus barkanae*, Sandhill in Forest Reserve, det. M. R. Nodda.
- **lacrymans** (Wulf) Fr. Not common in Man. and Sask. Dry rot caused by this fungus caused \$2,000 damage to a movement floor in Winnipeg, it destroyed the boarding on the walls of a cellar in Yorkton, Sask., and the fungus has been collected at Regina, Sask. These are the only definite reports.
- lividus** Fr. On dead branches of *Thuja occidentalis*, etc. Common to Norway House and Winnipeg, Man., at Prince Albert, Sask., coll. E. C. Stalman.
- pilosus** Burt. On decayed wood, Norway House, det. E. A. Burt.
- **tremellosus** Sordani. Common on dead *Betula alba* var. *papyrifera*, *Populus*, etc., across Man.
- Polyporus abietinus** (Jacks.) Fr. Common on dead wood of conifers wherever they grow in Man. and at Lake Waskesiu, Sask. not abundant on cutinous railway ties.
- **adustus** (Willd.) Fr. Common on dead *Populus balsamifera*, *P. tremuloides*, etc., in Man. and Sask. When growing on the bark on poplar supports in a cellar the piles are almost white.
- albellus** Peck. Not uncommon on dead *Betula alba* var. *papyrifera* and *Populus*, Norway House to Univ.
- albiceps** Peck. Two small collections of this rare species at Univ., and one at Rensselaer River. It appears about the end of July.
- **anceps** Peck. This rather rare species has been collected on bark of dead conifers at Ingolf and Fawn, western Ont., and at Lacombe, Man. (See Kauffman, *Mycol. 18: 27*).
- **arcularius** (Jacks.) Fr. On dead *Betula alba* var. *papyrifera* and *Salix*, Univ. as far as I know Lake Winnipeg. This species appears in early spring. It has been collected from May 7 to June 2.
- **betulinus** (Bull.) Fr. Common on *Betula alba* var. *papyrifera* in eastern Man. north to Norway House, and in northern Sask. The sporodochia in March begin in the autumn, is interrupted by winter, and continues in the spring.
- **biformis** (Jacks.) Berk. On deciduous wood, Norway House and Winnipeg.
- **brunneus** (Pers.) Fr. On fallen branches of *Betula alba* var. *papyrifera*, *Quercus macrocarpa*, etc., eastern Man. to Univ. and Victoria Beach.
- **caninus** (Schrad.) Fr. On decayed wood, Norway House.
- **cinnabarinus** (Jacquin) Fr. Not uncommon on dead conifers, *Populus*, etc., eastern Man., Univ., and around Lake Winnipeg.
- circinatus** Fr. On the ground, growing from buried wood, Minitaki and Victoria Beach.
- **conchifer** (Schw.) Fr. On fallen branches of *Ulmus americana*, not uncommon along the Red River at Winnipeg, but not yet found in the more carefully surveyed woods of the Univ.
- **cuticularis** (Bull.) Fr. One collection, at Victoria Beach in 1917.
- **discrepus** Fr. Rather common on dead *Salix* and other deciduous trees along the Red River and eastward.
- **elegans** (Bull.) Fr. Frequent on dead, sometimes partially buried, branches and wood of *Acer Negundo* and other deciduous trees, Norway House to Univ., and at Swan River.
- **fibrillosus** Karst. Two collections on dead conifers, Victoria Beach, July and Sept. 1927. This rather striking species seems to be rare.
- **horiformis** Quél. Two collections on dead *Populus*, Univ., July and Aug., 1927.
- **fulvipes** (Pers.) Fr. One collection on old deciduous wood, perhaps *Ulmus americana*, Univ.
- **glivus** (Schw.) Fr. On dead *Acer Negundo* and *Salix*, Univ. Not commonly found in Man.

- Polyporus glomeratus** Peck. On fallen *Populus*, Univ. on stump of deciduous tree, Winnipeg. This is a somewhat rare species, see Overholts (Torrey, 17: 202).
- guttulatus** Peck. On dead wood probably coniferous, Birds Hill and Minn. *P. olivaceus* Fr. may be the same.
- **hirsutus** (Wulf.) Fr. Common on *Populus tremuloides*, *P. canadensis*, and wood of other deciduous trees in the eastern half of Man.
- **immutis** Peck. Two small collections on stump and wood of *Populus canadensis*, Clear Lake, det. J. Moezner. (See Kaufman, Mycologia, 18: 28.)
- **melanopus** Fr. At the base of *S. x.* (Clear Lake; apparently also sometimes from buried stumps of deciduous trees or stumps at Univ.) but the latter specimens approach *P. varius*, p. 6.
- **nidulans** Fr. On dead *Betula alle* var. *populifera* Berens River; on dead *Abies balsamea*, Univ.
- **osseus** Kalkb. On old wood in coniferous areas at Kenora and Victoria Beach.
- **ovinus** (Schaff.) Fr. Not uncommon in damp woods on the ground (probably from buried wood or roots) in coniferous areas at Minn. and Victoria Beach.
- **pergameneus** Fr. Very common on dead *Betula alle* var. *populifera*, *Populus balsamifera*, *P. tremuloides*, etc. across Man. and to Sask. The hymenium is often a bright purple color, especially when it matures in late autumn.
- **persicus** (L.) Fr. Common on stumps in coniferous areas in eastern Man. and at Clear Lake. The fungus is often, but not necessarily, on burnt areas. It probably arises from wood under ground, but this point has not been investigated at Man.
- **pieipes** Fr. Common across Man. on old deciduous, and perhaps also coniferous, stumps and logs.
- **planellus** (Peck) Race. Common on fallen branches of *Amelanchier alnifolia*, *Quercus macrocarpa* and other freestone species at Univ., St. Norbert and Victoria Beach.
- **pubescens** (Schumacher) Fr. Common on dead wood of deciduous trees in Man., also collected on the injured base of a living tree of *Prunus nigra*, Univ.
- **resinosus** (Schrad.) Fr. Rare on stumps of *Quercus macrocarpa* or logs of *Alex. Negundo*, Univ.
- **Schweinutzii** Fr. Occasional, but when present often large and conspicuous, on or near stumps or trunks of *Abies balsamea*, *Populus canadensis*, and probably other conifers, Clear Lake and Victoria Beach eastward.
- **sempilevatus** Peck. Three collections on old wood of *Populus*, *Amelanchier*, etc., Univ. and Victoria Beach.
- **spumosus** (Sw.) Hornem. One specimen, and that not very satisfactory, collected at Winnipeg in 1907.
- **squamosus** (Bats.) Fr. Rare on deciduous trees about Winnipeg. Not seen in recent years, but Dr. Buller, who knows the species also in Europe, formerly found a few small specimens. Winnipeg must be near the northern limit of this species.
- **subchartaceus** (Murr.) Lloyd. This species, or form of *P. pergameneus*, is fairly common on *Populus*, Univ.
- **sulphureus** (Bul.) Fr. Very rare on deciduous trees in Man. Two collections only, both from Elm Park, Winnipeg, in 1913 and 1935. One or two other reports of this fungus from Man., but Winnipeg is apparently near the limit of its range.
- **Tephroleucos** Fr. Two specimens, from Mynaki and Victoria Beach may belong to this species.
- **tuckahoe** (Gussow) Lloyd. Sclerotia common in soil in Man. from the North Dakota boundary near the Pembina Hills northward to Carman, Oakville, Clear Lake and Swan River, and in wooded areas in Sask. from Saskatoon northward. Gussow (Mycologia, 11: 104) gives good illustrations and description of the sclerotia, and of a pileus which grew from one. He points out that a fruit-body, doubtless of this species, had been obtained as early as 1806. Subsequent to Dr. Gussow's report in 1919, pilei were obtained from potholes sclerotia by S. Cridde at Treeshank, Man. by W. F. Fraser with sclerotia from Pentstemon, Sask., by E. T. Howe at Saskatoon and by Geo. Mayer at Kenville, Man. Mr. Mayer ploughed up a sclerotium about 5 inches in diameter in the summer of 1929, he cut off about one-third and planted it in slightly damp earth, the larger portion was dried for a time, and then also planted, and both were left in a basement. In the spring of 1930 the smaller

portion produced a pileus 3 or 4 inches in diameter, the larger portion produced a pileus $4\frac{1}{2}$ inches in diameter in the early autumn of 1930. This larger portion was left in its pot, and produced a purse 5 inches high and $5\frac{1}{2}$ inches wide in the summer of 1931, and still another in the summer of 1932, but this time only $2\frac{1}{2}$ inches in diameter. It was left, but Mr. Mayer has reported no more piles since the three in successive years. He also found piles in the field four years after breaking, and traced their bases down to the sclerotium six inches in the soil. E. Criddle and G. R. Busby have also found piles in nature. Reports have appeared in newspapers several times of the finding of these sclerotia, but they are usually interpreted as pemmican buried by the Indians or early explorers. The sclerotia are sometimes attached to roots, but their hosts or substrata have not been ascertained, although *Populus* has been suggested. They are found more commonly in lighter soil, and have not been reported in the heavy clay near the Red River. Lloyd (Myc. Notes, 6: 954) considers this fungus to belong to *P. tuberosa* Fr., known from Italy and recently from Holland and reported from Japan. So far as the writers know, *P. tuberosa* is known only from Man. and Sask., but it doubtless occurs also in North Dakota and perhaps in Alberta.

Polyporus tulipiferus (Schw.) Overholts. Everywhere on dead branches of deciduous trees and shrubs, including *Acer Argente*, *Caragana arborescens*, *Cladonia canadensis*, *Prunus nigra*, *Pyrus* sp., and *Liriodendron* in Man., *Alnus incana* and *Amenchier nymphaeae* at Saskatoon, Sask., *Caragana* sp. at Indian Head, Sask. and *Salix* sp. at St. Gregor, Sask.

— **umbellatus** (Pers.) Fr. One collection of this "compound" *Polyporus* was made at Winnipeg Beach by V. W. Jackson. He found the pilei to be edible.

— **usneae** Lloyd *P. applanatus* Hornell. This rare species was collected at Winnipeg in 1908, and at Victoria Beach in 1931 (det. L. O. Overholts). Beaver and Stope (Mycologia, 27: 646) state that *Polyporus usneae* and *P. usneae* "seem to reach their northern limit of distribution in Wyoming," but both occur in Man.

varius Fr. Common along the Red River and found at Clear Lake, Matlock and Victoria Beach. The fungus does not over approach *P. sclerotopus* in appearance. It grows from buried sticks or roots, and is usually found in July.

velutinus Fr. Common on *Populus*, *Salix*, etc. in Man. on *Populus tremuloides* at Sutherland, Sask.

— **vesiculosus** (L.) Fr. On dead wood, sometimes on living trees, of *Prunus nigra*, *Pyrus baccata*, *Quercus macrocarpa*, etc., across Man.

— **volvatus** Peck. On *Picea canadensis*, rather common at Clear Lake, found also at Ethelbert and Swan River, but considerable search has failed to locate it around Lake Winnipeg or eastward.

Peria ambigua Bres. One collection, rather young, on *Populus*, Univ.

— **anulifera** Fr. On old deciduous wood, Univ.

— **hirsutella** Overholts in litt. On bark of *Populus*, Univ.

— **calcea** Fr. On a burnt log, Swan River.

— **candidissima** (Schw.) Cooke. On old deciduous wood, Univ., on old *Picea canadensis*, Berens River.

— **corticola** (Fr.) Cooke. Rather common on old bark and wood of *Populus*, and probably other deciduous trees, Univ. and Winnipeg.

— **eupora** (Karst.) Cooke (*P. attenuata* Peck). Common on bark and wood of *Populus*, etc., Univ. to Victoria Beach and eastward.

— **ferruginosa** (Schrad.) Fr. Common on dead *Acer Argente*, *Salix*, etc., along the Red River and at Berens River.

— **ornata** (Peck) Sacc., or near. On old deciduous wood, Univ.

— **pruinicola** (Murr.) Sacc. & Trett. On dead branch of *Prunus*, Univ. (See Mycologia, 23: 119.)

— **pulchella** (Schw.) Cooke. On charred coniferous wood, Vivian.

— **punctata** Fr. Fairly common on old *Populus* and *Salix*, Univ. (See Mycologia, 23: 120.)

— **purpurea** (Fr.) Cooke. On old *Populus*, etc., Univ. and Winnipeg.

— **reticulata** Fr. On bark of decayed log of *Populus*, Univ.

— **rhodella** Fr. On bark of *Populus*, Swan River. This seems to be the first record of this species in North America.

— **selecta** Karst. Commonly associated with decay of coniferous timbers, and sometimes apparently on old deciduous wood, Univ. to Victoria Beach and eastward.

- Portia semitincta* (Peck) Cooke. Two collections on decaying wood of *Populus*; Univ. Vaillantii Fr. On rotted coniferous timbers and railway ties, Univ. and Winnipeg, Man.; apparently this species on *Prunus compestris*; Pike Lake, Sask.
- versipex* (Pers.) Fr. Two collections on dead *Populus*; Univ.
- *viticola* (Schw.) Cooke (*Trametes trass* (Karst.) Weir). On old *Salix*, Univ., on charred coniferous wood, Victoria Beach.
- *washingtonensis* Murr. On old stump of deciduous tree, Univ.
- Panethelium fimbriatum* (Pers.) Fr. On decaying wood of *Betula alba* var. *papyrifera*, *Populus*, etc., Minaki, Victoria Beach.
- Trametes americana* Overholts. Common on railway ties and other coniferous wood, Univ., Winnipeg and eastward. Mounce and Macrae (Can. J. Research C, 14: 215) found that cultures of this species would not combine with cultures of *Leucites sarcocolla*.
- *biapida* Bagl. Common on old deciduous wood, probably mostly *Populus* and *Salix*, across Man., on dead *P. balsamifera*, Foam Lake and St. George, Sask., on dead *P. tremuloides*, Langar, Sask. The form known as *T. Peckii* Halshur is sometimes found.
- malicola* Berk. & Curt. On dead wood of *Populus*, Univ.
- serialis* Fr. On rot bark of a conifer, Victoria Beach. This rather rare species has been found but once.
- suaevolens* (L.) Fr. On diseased but living *Salix*, Oakville, Univ.
- *Trogii* Berk. On dead deciduous tree, Guelph and Winnipeg.

Boletaceae

- Boletinus carypes* (Opatowski) Klotz. Under *Picea*, and possibly other conifers, Clear Lake, Vivian eastward.
- *palustris* Peck. In a Sphagnum bog, Kenora.
- *pictus* Peck. Found only at Kenora, associated trees not recorded. W. H. Snell states that it grows under *Pinus Strobus*. This tree is not uncommon at Kenora.
- *spectabilis* Peck. In bogs under *Larix laricina* and *Picea marstiana*, Birds Hill, Ingolf, Norway House.
- Boletus brevipes* Peck. In woods, Minaki.
- castaneus* Bull. In sandy mixed woods, Victoria Beach.
- chrysenteron* Bull. One somewhat doubtful collection in sandy woods, Victoria Beach.
- edulis* (Bull.) Fr. Under *Pinus Banksiana* in sandy soil, Victoria Beach.
- felbeus* Bull. Growing on or through very much decayed wood, Victoria Beach.
- granulatus* (L.) Fr. In sandy woods, Lac du Bonnet, Victoria Beach.
- *inhabilis* Murrill. One specimen was found in mixed woods at Victoria Beach. Dr. Snell reports Mycologia, 28: 463 that it was previously known only from Washington and Oregon. Spores very long, 14-28 × 5-8 μ.
- *niveus* Fr. In low mixed woods, Victoria Beach.
- *pipiratus* Bull., probably in leaf mold in floodplain woods principally of *Populus tremuloides* Univ. This was called *B. rubundus* in "The Fungi of Manitoba."
- *placidus* Bonord., probably. Sent in from Ingolf.
- *scaber* (Bull.) Fr. Fairly common in deciduous or mixed woods, Univ., Victoria Beach eastward. See Buler (82, vol. II).
- *sphaeroperus* Peck. In deciduous woods, Univ. This large Boletus with spheroid spores was first found in 1926, and several appeared in the same place in 1927, also in another locality more than a mile away. It has not been seen since.
- subglabripes* Peck. Sent in from Ingolf.
- tomentosus* Kauff., probably. Common in coniferous woods, Clear Lake, Victoria Beach, eastern Man. Pores yellow, viscid, slightly scaly, the flesh turns blue.
- *versipellis* Fr. Common in deciduous woods, Univ., Victoria Beach.

Agaricaceae

Leucosporae

- Amanita bisporiger* Atk. This species, or form of *A. verna*, has been collected in sandy soil under *Pinus Banksiana* at Victoria Beach, Aug.-Sept. Basidia 2-spored; spores 9-12 × 8-9 μ. Plants slender, with an unpleasant odor.

Amanita muscaria Fr. Often common across southern Man. in deciduous woods, especially under Populus, in Aug. and Sept., under willows at Eastern Lake. Sometimes very large.

Pileus usually orange-yellow with white scales, as is usual in North America, but rarely the European form is found with bright orange to scarlet pileus with yellow patches. (Middle (107) found that cattle may eat *A. muscaria* with considerable subsequent illness.)

phalloides Fr. One collection only, from Mank. in Sept., seems definitely to belong to this deadly species.

porphyria Fr. Victoria Beach to Kenora, Aug-Sept. Pileus rather small (4-6 cm.), brownish, stem slender, annulus slightly above centre.

ruessuloides Peck. In sandy soil, Victoria Beach. Pileus pale yellowish, margin very striate, annulus evanescent, volva faint and evanescent. What appears to be this species is sometimes found in clay soil. Univ.

— **solitaria** Fr. Two or three plants found Oct. 1, 1927, at Lac Seul. Pileus to 15 cm. wide, white with gray warts. Spores 10-12 \times 8-9 μ .

— **varna** Fr. Mank., Sept. Pileus pure white, gasterous round, margin even but striate above the margin; volva a large cup. This deadly species is rarely seen.

— **virosa** Fr. Mank., Sept. Pileus white, convex at center, annulus represented by shreds on the stem.

Amanitopsis strangulata Fr. In woods, Univ. and Kenora. Pileus with scales; volva not conspicuous, spores 10-12 μ .

vaginata Fr. var. **alba** Sacc. Common in deciduous woods in Man.

vaginata var. **fulva** Sacc. The latter form occurs in coniferous woods.

vaginata var. **livida** Sacc. Also in coniferous woods.

Armillaria caligata Fr. Sandy woods, Victoria Beach, Sept. Pileus to 12 cm. wide spotted with brown scales, stem stout, nearly below the annulus, spores 7-8 \times 3-5 μ .

— **focalis** Fr. Victoria Beach, July-Sept. Pileus small, orbiculate, convex, spores 4 μ , globose.

— **melles** Fr. Abundant in a. Is symbiotic, and often grows to living trees throughout Man. and Sask. in autumn. The *basidiomycetes* in it found frequently in the woods. The mycelium within a rotting wood becomes phosphorescent when exposed by breaking the wood, the "fox-fire" of a commoner name; it becomes protected by a thin black bark-like layer. The young mycelium is sought as food, particularly by people who have come from central Europe. See Buller (82, vols. II and III).

Cantharellus aurantius Fr. Common in coniferous woods from Norway House to Lac Seul, and Clear Lake, Aug-Oct. 5-7 \times 3-4 μ .

cibarius Fr. The *Cantharellus* is sometimes abundant in coniferous woods in eastern Manitoba, Aug-Sept. Not found to contain larvae. Headlam reports larvae almost always present in Michigan, but not in Europe.

— **cinnabarinus** Schw. One collection, Victoria Beach. Spores 8-12 \times 4-5 μ .

infundibuliformis Fr. In and around logs near the Ontario boundary, Sept.

tubaeformis Fr. In frondose and rotting woods, Victoria Beach, eastward, Sept.

— **umbonatus** Fr. Common in coniferous woods, often on mossy rocks, sometimes on wood, Clear Lake, Norway House, eastern Manitoba.

Clitocybe adreondackiana Peck. Univ., Aug-Sept. Pileus hygrophanous with a zone near the edge when moist, spores 4-8 \times 3-4 μ .

— **Talbotula** Peck. In frondose woods, Univ. Pileus small, infundibuliform, centre darker; spores 5-6 \times 3-4 μ . Knuffman records this species from woods of hemlock and cedar, so the Manitoban specimens may belong to another species.

— **albissima** Peck. One collection, Univ. Pileus about 5 cm. wide, margin sub-zonate, spores minutely echinulate.

— **candidans** Fr. Univ. and eastern Man. Aug-Sept. Pileus shining mucronous-white, gills crowded, spores 5-6 \times 3-4 μ .

— **cartilaginea** (Bull., non Fr.) Bros. Victoria Beach, Sept. Plants caespitose, cartilaginous, sessile, spores 5-7 μ .

catina Fr. Victoria Beach, Sept. Resembles *C. infundibuliformis*, but pileus paler, spores smaller (4-6 \times 3 μ).

— **clavipes** Fr. Observed at Ingolf by Dr J. E. Lange and G. R. Bushy.

- Clitocybe compressipes** Peck. Mixed woods, Vivian and Kenora. Pileus small, brownish, stem compressed, spores $4-5 \times 2\frac{1}{2}-3\frac{1}{2} \mu$.
- desibata** Fr. Sandy woods, Beausejour. Plants small, white, becoming darker and soiled when dry, spores $4-5 \times 3 \mu$.
- decora** Fr. One collection at Gimli by T. Johnson, Sept. Pileus brownish-yellow with scales, spores $c. 6 \times 4 \mu$.
- ditopoda** Fr. Mixed woods, eastern Man. Pileus hygrophanous, flaccid, 2-4 cm. wide, depressed, denser especially at centre and streaked with brownish fibrils, stem 4-5 cm. \times 3-6 mm; gills white, slightly decurrent, spores mostly $6 \times 5 \mu$.
- ectypoides** Peck. On rotten logs, Victoria Beach, Aug. Pileus virgate with blackish fibrils and points, spores $8-9 \times 4-5 \mu$.
- farinacea** Murrill. On wood just every autumn in an open house. Univ. Pileus hygrophanous, odor very farinaceous, pale watery tan, $2\frac{1}{2}-3\frac{1}{2}$ cm. gills close, stem tapering upward, whitish, spores $6-8 \times 3-4 \mu$. The close gills and squamulose make the name doubtful.
- fragrans** Fr. In fringing woods, Univ. Pileus pliate, watery, odor of anise, gills close, sub-decurrent, spores $6-7 \times 4 \mu$.
- gigantea** Fr. At Mankato and Kenora, apparently this species also at Clear Lake, attain a very large size. Aug-Oct.
- infundibuliformis** Fr. Ingolf, probably common.
- maxima** Fr. Occasional around Lake Winnipeg and probably elsewhere.
- metachroa** Fr. In mixed woods near Lac du Bonnet, Sept. Pileus 15-20 mm., hygrophanous, bright translucent watery-brown, fading on drying glabrous, gills arcuate decurrent, rather distant, stem 15-25 \times 2-3 mm., concolor, per. none-silky, glaucous, taste mild, spores $4-5 \times 2-3 \mu$.
- morbilifer** Peck. Amongst grass, Winnipeg and Univ., Sept. reputed to be poisonous.
- multiceps** Peck. Common on the Univ. campus, perhaps from buried wood in the forest at Ingolf. Pilei densely caespitose.
- multiformis** Peck. Fringing woods, Univ., July. Pileus hygrophanous, glutaneous, to 10 cm. wide, odor campine, at first minutely silky, gills crowded, white then yellowish, stem stuffed, spores $c. 6 \times 4 \mu$.
- odora** Fr. Very common in woods, Univ., Victoria Beach and eastward. Plants greenish to whitish with the characteristic odor.
- odora var. anisaria** Peck. Found at Univ., probably common.
- oprophila** Peck. Under *Pinus Banksiana*, eastern Man.
- praecox** Knuff. Amongst grass, Victoria Beach, June. Pileus dark green with minute scales, odor and taste farinaceous, spores $8-10 \times 5-6 \mu$.
- pulcherrima** Peck. On old wood, Victoria Beach, Aug.
- sinopica** Fr. Clear Lake and Victoria Beach, July-Aug. G is very crowded narrow, becoming brownish, pileus brick red.
- trogia** Fr. Specimens at Ingolf were considered by Dr. Lange as probably this species.
- truncicola** Peck. On wood, Univ. Winnipeg and Victoria Beach. Spores $4-5 \times 3-4 \mu$.
- Collybia lacervata** Fr. Doubtful specimens from Victoria Beach and Univ., June.
- laqueosa** Fr. Possibly a form of *C. strigosa*. Univ., June.
- albiflava** (Peck) Knuff. Victoria Beach, Aug-Sept. Pileus large, stem bulbous, spores $8-9 \times 5-6 \mu$, cystidia crystalline at apex.
- atrata** Fr. This black Collybia occurs in burnt places, Clear Lake (spores $6-8 \times 4-5 \mu$), Victoria Beach.
- atratoides** Peck. On old wood, sometimes on charcoal, Univ., Victoria Beach. Spores sub-globose, $c. 5 \mu$.
- butyracea** Fr. Common, Univ. to Norway House and Kenora.
- clavrhata** Fr. A doubtful collection at Victoria Beach. No sclerotia were present.
- colorea** Peck. Victoria Beach eastward. Pileus 2 cm., hygrophanous, watery-brown then yellow-brown; stem concolor; spores $3-5 \times 2\frac{1}{2}-3 \mu$.
- confusum** Fr. Typical specimens rather common in coniferous areas, Victoria Beach eastward, spores $c. 3-5 \times 3 \mu$.

- Collybia Cookii** (Bres.) J. Arnold (Mycologia, 27: 288, *C. circinata* var. *Cookii* Bres.) Univ., Gimli, and eastward. Common, sometimes at least on remains of other agarics, always arising from a yellowish sclerotium.
- **dryophila** Fr. Very common in deciduous woods throughout the spring and summer; variable, and sometimes with the proliferations formerly known as *Tremella myriophylla*. See Bulter (82, vol. III).
- **familia** Peck. On decaying wood in coniferous areas, eastern Manitoba.
- **hirsilorum** Fr. Common, Berens River, Clear Lake, Univ., July-Oct. Pileus soft, rather small, stem white tomentose, spores narrow.
- **hygrophoroides** Peck. Common in June (only) along the Red River and probably in other deciduous woods. Pileus reddish, stem rooting, spores $5-7 \times 3-4 \mu$, cystidia pointed.
- **longipes** Fr. One specimen, amongst *Acer negundo* and *Salix*, June 27, 1895, Univ. Pileus 7½ cm. wide, tan with date-brown center, appearing velvety but hairs few, stem extending 8 cm. above ground and 8 below, 8 mm. wide at apex, 14 mm. at ground line, solid, date-brown, with tomentum, gills almost free, becoming yellowish; spores $9-11 \times 6-7 \mu$, basidia 4-spored, cystidia on sides and edges of gills. This fits Kauffman's description fairly well, but not Bres.
- **maculata** Alb. & Schw. This large "spotted" *Collybia* is not uncommon in coniferous woods, Victoria Beach and Kenora, July-Sept.
- **myriadophylla** Peck. Common on coniferous wood, Clear Lake, around Lake Winnipeg and eastward, found once on deciduous wood, Univ. June-Oct. Gills blue, very crowded, spores c. $3-4 \times 2 \mu$.
- **monosericea** Batsch. Possibly only a form of *C. maculata*, Minaki, Sept.
- **tuberosa** Fr. Common in autumn, eastern Manitoba to Norway House. Pileus small, 4-10 mm., with slender stem arising from an elongated dark reddish-brown sclerotium in the remains of various Hymenochaetes, including *Hydnum* sp. and *Lactarius piperatus* parasitized by *Hypomyces lactifluorum*. Usually the substratum is undeterminable.
- **velutipes** Fr. Common across southern Man., especially on *Salix* and *Populus*, sometimes on *Ulmus*, sometimes a winter annual surviving the Manitoba winter and shedding spores about the first of April. See Bulter (82, vol. III).
- Hygrophorus borealis** Peck. Univ., Victoria Beach, eastern Man. Pileus 1-4 cm., hygrophanous, not veined, even, watery white, gills distant, stem 3-5 cm. \times 3-5 mm., spores $7-10 \times 4-6 \mu$.
- Cantharellus** (Schw.) Fr. On wood Victoria Beach. Pileus small, yellow to orange smooth or minutely squamulose, spores $10-11 \times 6-7 \mu$.
- **terraceus** Fr. Doubtful specimens from Univ and Minaki.
- **chrysodon** Fr. In coniferous woods, Clear Lake Victoria Beach eastward. Sometimes stored by red squirrels. Known by the golden granules on pileus and stem, spores $6-10 \times 4-5 \mu$. See Bulter (82, vol. II).
- **coelestinus** Fr. Typical specimens of this brilliant species occur in woods or the edge of bogs; Univ., eastern Man., Sept.-Oct.
- **Colemanianus** Blizant. Univ., Oct. Pileus 2-3½ cm. wide, smoky-purple, subviscid, umbonate, gills distant, intervenose, spores $8-9 \times 5-6 \mu$.
- **conicus** Fr. Rather common, Univ eastward and northward, July-Sept. Pileus conical, reddish-yellow then black.
- **eburneus** Fr. One collection, Victoria Beach, Sept.
- **flavodiscus** Frost. Victoria Beach, Sept.
- **fuliginosus** Frost. Univ., Minaki.
- **fuscus-albus** Fr. var. *occidentalis* Kauff. Amongst moss, edge of a bog east of Beauséjour. Pileus 2-3 cm., viscid, gray-brown, darker on disc, gills white, decurrent, stem white, somewhat scabrous-pruinose; spores $6-8 \times 4-4 \frac{1}{2} \mu$.
- **hypothecus** Fr. In coniferous woods, Ingolf, Kenora, late autumn. Pilei brownish, gills bright yellow. Kauffman considers this species to be southern, but Dr. Lange found Ingolf specimens to agree with those in Denmark.
- **laevis** Morg. Frondous woods, Univ., Oct. Pileus reddish brown, glutinous, stem also glutinous; spores $6-9 \times 4-5 \mu$, spinulose.

- Hygrophorus miniatus** Fr. Occasional, Victoria Beach to Ingolf and Kenora, and at Mile 412 on the Hudson's Bay Railway.
- **nigrescens** Quél. This fine species was found in the Univ. woods, Aug. 3, 1928. Details of the specimens are given in "The Fungi of Manitoba." The colors and stature are as shown by Bresadou (Fenn. Mycol. p. 356), except that the Manitoba plants were not campanulate. The spores were $9-11 \times 6-7\frac{1}{2}\mu$, rather shorter than described. A striking fungus, certainly near to *H. nigrescens*.
- **nitidus** Berk & Curt. Coniferous areas, Clear Lake, Victoria Beach, Kenora. Pileus small, umbilicate, yellow but fading.
- **pallidus** Peck. Univ., Oct. Pileus smoky-purple when fresh, spore about $6 \times 4\mu$.
- **pallidus** Peck. Damp woods, Victoria Beach, Sept. Pileus viscid with yellow gluten, stem with yellow dots at apex, some of which turn black, spores $8-11 \times 4-6\mu$.
- **peckii** Atk. B. rds. Hill, June; Kenora, Oct. Small reddish-brown viscid plants.
- **pratensis** Fr. Clear Lake and Kenora, Sept.
- **pratensis** var. **pallidus** Berk & Besome. Univ. Victoria Beach, Sept.-Oct. Pileus somewhat turbinate, whitish, spores $7-8 \times 4-6\mu$.
- **pustulatus** Fr. This fine parrot-green plant has been seen but twice, Kenora, Sept.
- **pudorinus** Fr. Not uncommon in mixed woods; Clear Lake, Victoria Beach, Minaki; Sept.
- **purpureus** Fr. In deciduous woods, Univ. Pileus viscid, striate, spores $8-11 \times 5-6\mu$.
- **Russula** (Schaff.) Quél. Kenora and Minaki, Sept. Often placed in *Tricholoma*.
- **speciosus** Peck. In oaks, Minaki, Kenora, late autumn. The orange-colored piles are striking.
- **subrufescens** Peck. In mixed woods, Victoria Beach. Pileus pink, pruinose, 2-3 cm. broad, stem pinkish, slender, gills close, narrow, decurrent.
- **virginicus** Fr. Kenora, Sept.-Oct.
- Laccaria laccata** (Scop.) Berk & Broom. Common and variable, along the Hudson's Bay Railway and Norway House southwards.
- **ochropurpurea** Berk. Rather common, Univ. eastward. Similar to the preceding, but pileus larger.
- **torulalis** (Molt.) Roux. Kenora. Pileus small, deformed, spores echinulate, about 10μ wide.
- Lactarius affinis** Peck. Mixed woods, Norway House, Victoria Beach and eastern Man. Often abundant and well developed.
- **chrysoscheus** Fr. Mixed woods, Victoria Beach. Pileus subvelut pale yellowish, somewhat sored, the milk changes to sulphur yellow.
- **calicoides** Fr. In coniferous woods, Norway House, Victoria Beach, Aug.-Sept. Often abundant, pileus large, covered with a tomentum which is particularly evident around the margins of expanding pilei, milk changing to yellow.
- **concoloratus** Fr. Clear Lake, Ingolf, Univ., Aug. Pileus large, somewhat sored, whitish; gills pink to salmon colored, milk white.
- **deliciosus** Fr. Common in coniferous areas, Clear Lake, Norway House, eastern Man. This species is sometimes collected and stored by squirrels.
- **fuliginosus** Fr. Kenora, Sept. Pileus small, smoky brown, taste acid.
- **halvus** Fr. In oaks, Ingolf, Kenora, Aug.-Sept. Pileus tawny, rather large; milk watery.
- **hygicus** Fr. Mixed woods, Victoria Beach, Aug. Pileus bright tan, viscid, stem concolor; gills subdecurrent.
- **indigo** Schw. On sandy soil under *Pinus Banksiana*, near Bonassjour and at Victoria Beach; Sept. This striking fungus with dark blue milk has been found in but two locations, and only a few piles in each case; but it can be identified from a distance.
- **insularis** Fr. In frondose or mixed woods, along the Red River, at Norway House and Victoria Beach. Pileus copper-orange, conspicuously sored, taste acid, spores echinulate, $8-10\mu$.
- **maculatus** Peck. In sandy woods, Victoria Beach. Pileus grayish-lilac, distinctly sored; milk, or at least the flesh, turning purplish when exposed. This striking fungus is rather common in autumn.
- **obscurus** Lach. Near stumps of *Alnus incana*, Ingolf, J. E. Lange and G. R. Bisby. Pileus small, 1-2 cm. wide, brown, centre more or less umbonate. Dr. Lange considered it to agree with *L. obscurus* as he has found and described it in Denmark.

Lactarius parrus Peck In coniferous woods, Norway House

— **pipervatus** Fr. Common along the Red River, Lake Winnipeg, and eastward. Frequently parasitized by *Hypomyces nectrophorus* Gr., which makes it a conspicuous orange-red fungus frequently gathered and eaten, or dried for winter use, or sold in the North Winnipeg market, usually by people from central Europe. See Buller (82 vol II)

pubescens Fr. Ingolf, Aug. Like *L. conchatus*, but pileus smaller and stem hollow

pyrogalus Fr. Mixed woods, Mank. Victoria Beach, Sept. Pileus dark gray, spores c. 8 μ .

— **rufus** Fr. Common in coniferous areas, in bogs or woods, Norway House to Victoria Beach eastward, Aug.-Sept.

— **subdulcis** Fr. In mixed or frondose woods, Norway House to Univ., early July to Sept.

— **subpurpureus** Peck. On sandy soil in coniferous woods, Victoria Beach, Sept. Pileus dark red, zoned, milk reddish becoming greenish.

theogalus Fr. In a Sphagnum bog, Ingolf, Sept., = *L. Lange* and G. R. Babey

terminatus Fr. Common in frondose or mixed woods, Clear Lake, Norway House, Univ. and eastward, July-Sept. Pileus pinkish-buff, tomentose

trivialis Fr. Seen at Ingolf, Norway House and Victoria Beach

turpis Fr. Mixed woods, Kenora, Sept. Pileus sage-amber; spores 6-8 μ

velutius Fr. Rather common (Clear Lake to Gar. and Kenora. The milk and flesh soon become luscious and eaten. Reputed as poisonous to man, but found by Mr. Criddle to be stored as food by squirrels

— **vellerius** Fr. Mixed woods, Arthur and Victoria Beach. Pileus sometimes up to 30 cm. in diameter, whitish, velvety, arid.

— **viscidus** Fr. Mank., Sept. Pileus viscid, drab, acetate, stem hollow

— **volcanus** Fr. Ingolf, Aug.

Lentinus cochleatus Fr. On old Betula, Victoria Beach, Aug. coll. H. J. Brode. Pilei small, smooth, confluent-campine, spores 3-4 μ .

lepidus Fr. Very common on various trees and other coniferous wood in Mar.

sulcatus Berk. Occasional on the wood of Populus etc. along the Red River, June-July. Pileus small, white, tan with rufous centre, spores 14-16 \times 6-7 μ

umbellatus Peck. Locally on wood, sometimes on the ground, coniferous areas of eastern Man. Pileus 14-20 cm., very hygrophanous, watery when then asbellate, umbellate, stem short, capitate, angular or grooved, gills very narrow, spores 4.6 \times 3.4 μ .

Underwoodii Peck. On wood, Lar. & Bennett, J. J., coll. A. M. Brown. Pileus large, rather woody, 10-15 cm. diam. - decays, pores gills very depressed, a scutellum-like white on the stem, sterile, stem squarish or corky, striate, spores 11 \times 4.5 μ .

— **vulpinus** Fr. On wood of Populus etc. near Lake Univ. Victoria Beach, Aug. Pilei imbricate, large, rough-hairy, spores c. 8 μ .

Leptota acutesquamosa Fr. Ingolf, Kenora, Aug.-Sept. Pileus wet with erect scales, spores 7-9 \times 2.1-3.1 μ .

— **americana** Peck. Occasional in fields, etc., Winnipeg and vicinity. Pileus large, somewhat scaly, tinged reddish, spores 8-10 (12) \times 6 μ .

— **armanthina** (Reop.) Fr. Amongst moss in woods, Ingolf. J. E. Lange and G. R. Babey. Considered by Dr. Lange to be this species, it agrees with the description in Rea's British Basidiomycetes

clippularia Fr. Common in woods, Univ. Victoria Beach eastward, July-Oct. Spores 11-16 \times 4-6 μ

cristata Fr. In deciduous and mixed woods, Univ., Victoria Beach, Jan.-Sept. Pileus small, with reddish scales, spores wedge-shaped, 6-7 \times 3-4 μ

gemulompora Atk. Ingolf, Aug. Pileus brown, silky, darker at centre, spores 13-16 \times 4-6 μ , obliquely spiculate

glioderma Fr. In coniferous woods, Clear Lake, Victoria Beach, Aug. Pileus viscid, reddish, stem perinate, spores 4-5 μ , with a small apiculus

— **granulosa** Fr. Common in coniferous woods, Clear Lake, Victoria Beach eastward. Pileus brick red, granulate as in the lower stem, spores c. 4-6 \times 3 μ .

— **illinita** Fr. In mixed woods, eastern Man., Sept., three collections. Pileus and stem glutinous, annulus obsolete, spores 5-6 \times 3-4 μ .

- Lepiota nausela** Fr. Sometimes abundant in yards and amongst grass, Manitoba and Saskatchewan. Sask., July-Sept.
- **rubretincta** Peck. Deciduous woods, Univ. Pileus 2-3 cm., reddish-brown on disc, with appressed reddish scales elsewhere, spores $8-9 \times 4-4\frac{1}{2} \mu$, apiculate, cystidia on edge of gills.
- Marasmius androsaceus** Fr. Commonly found attached to fallen needles of *Pinus*, Norway House southwest, apparent & this species on bark of *avenglinus* Univ.
- **campanellus** (Peck) Atk. & House. On dead twigs of *Abies balsamea* and *Pinus*, on the tree or fallen, Berens River to Vector a Branch. As Atkinson points out (Rept. State Botanist, New York, for 1917-18, 1919) *cephala stipitata* is a different species.
- **cohaerens** (Fr.) Berk. Along the Red River, July-Sept. Known by the horny dark red stems and the reddish cystidia $75-90 \times 10-2 \mu$. Broadest caps this species *M. conatopus* Pers.
- **epiphyllus** Fr. Common on fallen leaves of *Populus*, *Quercus*, etc., Univ. to Victoria Beach and eastward.
- **Terrythrops** Fr. In coniferous woods, sometimes on burnt places, Clear Lake and eastern Man. Pileus 1-2 cm., dark tan, disc darker, slightly pruinose, plane to depressed, gills substantial, white to yellowish, decurrent, stem 5-6 cm. \times 1-2 mm., dark-brown except at apex, with a slight green pubescence; sterile cells at edge of gills, spores $10-11 \times 6 \mu$.
- **felix** Morg. On fallen leaves of *Quercus macrocarpa* along the Red River. Pileus 3-7 mm., more or less sulcate, cream-colored becoming brownish, gills few, distant, venose, stem 1 mm. wide, brownish becoming dark chocolate-brownish, spores $8-10 \times 4-5 \mu$.
- **foetidus** Fr. On fallen *me-fence* trunks, Victoria Beach. Pileus stem brownish, with a small dark umbellous, stem usually color of rotten eggs.
- **Tyromyces** Loh. On decaying petioles or herbaceous stems Univ. Pileus .2 mm. wide, brownish, staminate, umbonate, stem brown, filiform, gills few, not attached to a collar, spores $8-10 \times 3-4 \mu$.
- **Trinatus** Peck. On fallen deciduous leaves, Univ., det. J. Dearness.
- **oreadeae** Fr. Rarely found amongst grass, Univ. Odor fragrant, spores $8-9 \times 4-5 \mu$. Buber (82, vol. 11 88-94) records that it has been cultivated for food in Winnipeg.
- **polypyllus** Peck. In fringing woods, Univ. Pileus pale reddish, gills narrow, crowded, almost free, stem hollow, taste of garlic persistent, spores $5-6 \times 3-3\frac{1}{2} \mu$.
- **rotula** Fr. Common on fallen leaves, on bark, etc. along the Red River. Gills attached to a free collar, spores $8-9 \times 3-4 \mu$.
- **scorodoneus** Fr. On the ground, in mixed woods, Ingolf, J. F. Lange and G. R. Boley. Strong odor of garlic when the plants are bruised.
- **aemulartipes** Peck. In deciduous woods, Univ. Pileus reddish-brown, stem dark reddish-brown, velvety, spores $7-8 \times 4 \mu$.
- **spongiosus** Berk. & Curt. On sand, Victoria Beach. Pileus tan, not darker at centre, stem spongy-thickened at base.
- **urana** Fr. In woods, Kenora, Univ., Victoria Beach. Stem reddish-brown, pubescent; taste acid.
- **varicosus** Fr. Near a bog, eastern Man., Sept. Pileus 1-3 cm., reddish-purplish-brown, gills becoming reddish, stem hollow, dark red within, spores $5-7 \times 2\frac{1}{2}-3\frac{1}{2} \mu$, taste mild.
- **velutipes** Berk. & Curt. In woods, Norway House, Univ. Pileus 2-4 cm., reddish-brown when moist, tyrophaneous, gills narrow, crowded, stem grayish-tomentose, 8-12 cm. long; spores $6-7 \times 3-4 \mu$, no cystidia, taste mild.
- Mycena Abramii** Myrtil (as a species of *Pranulus*) On old wood and debris, Victoria Beach, July-Sept. Pileus conic, dark brown, spores $8-11 \times 5-7 \mu$. Det. A. H. Smith, as were most of the species of *Mycena*.
- **aculea** Fr. Common on leaves and twigs, Univ., Victoria Beach, June-July. A beautiful little plant with red to orange pileus and yellow stem, spores $8-11 \times 3-4 \mu$.
- **aleutina** Fr. In woods, Univ., June-Oct. Pileus grayish, odor nitrous, spores $9-10 \times 6 \mu$.
- **atro-alboides** Peck. On decayed wood, Victoria Beach. Pileus small, blackish, stem dark, spores $\pm 8 \times 5 \mu$, cystidia $\pm 60 \times 17 \mu$.
- **atrocyanea** Fr. On debris in woods, Univ. Pileus conical, gray, about 1 cm. wide, stem bluish-gray, spores $8-9 \times 6 \mu$, sterile cells at edge of gills, odor none.

- Myoma chlorantha** Fr. or near. In deciduous woods, Univ. Pileus very small, greenish to yellowish, translucent striate, umbonate, gills white; stem 1 mm. wide, pale green above, darker green below, myceloid at base, spores $12-14 \times 5-6 \mu$, pointed sterile cells at edges of gills.
- **clitostomarginata** Gillet. Not uncommon on leaves in deciduous woods, Univ., June-Sept. Pileus conical, 5-10 mm. wide, yellowish or greenish, struate and glabrous, minutely silky; stem concolor, darker below 4-5 cm. $\times 1-3$ mm., sometimes twisted, easily splitting, myceloid at base, gills grayish with yellow edge, spores $9-13 \times 4-6 \mu$.
- **teleiularis** Fr. var. **futulsae** Kauff. Resora. A straw species with a long, veined, yellow stem.
- **collariata** Fr. On decayed deciduous wood, near Univ., Sept. Pileus creamy white, 5-13 mm. wide, glabrous, gills whitish, attached to a collar stem 4-6 cm. $\times 1-1 \frac{1}{2}$ mm., spores $7-9 \times 5-6 \mu$.
- **testicula** Fr. A Mycena thought to be this species has been seen on the bark of trees, Univ., not yet studied carefully.
- cyaneobasis** Peck. On debris in deciduous woods, Univ., June-July. Pileus blue-green when young 10-15 mm. wide, stem pruinose, with some bluish fibrils at the base, spores subpherical, 6-8 μ long.
- epitaxygia** Fr. Amongst moss, Berens River, Inglef., Aug.-Sept.
- **lucida** Fr. In mixed woods, Kenora, Victoria Beach. Pileus 2-3 cm. wide, umber, firm, stem concolor; spores $8-10 \times 5-6 \mu$, apiculate, cystidia $c. 50 \times 20 \mu$.
- **galericulata** Fr. Fairly common on decayed wood along the Red River and at Victoria Beach, June-Nov.
- **haematopa** Fr. Occasional, Univ. and Victoria Beach eastward. The stem exudes a red juice when cut, spores $8-10 \times 6 \mu$.
- **immaculata** Peck. In deciduous woods, Univ., July. Pileus 2-6 mm. wide, glabrous, pure white, as is the stem, spores $8-10 \times 3 \mu$.
- **limbinata** Fr. In deciduous woods, Univ. Pileus about 2 cm. wide, brown, with a sharply marked, persistent umbo, stem concolor twisted, furrowed, spores $c. 8 \times 6 \mu$.
- **ledicola** Lundell. In deciduous woods, Univ. Pileus gray, brownish on drying, small, pruinose to somewhat fibrillose, stem dark, spores $8-10 \times 6 \mu$, odor nitrous.
- Jacobi** Maire. On rotted deciduous wood, Rt. Norbert and Univ., June. Pileus 2-3 cm. wide, minutely silky gray-brown, becoming plane; stem rooting, often from buried wood; gills white with traces of pink, spores $9-11 \times 6-7 \mu$, cystidia numerous.
- **lactus** Fr. On old deciduous wood and bark along the Red River, June-Sept. Pileus to 10 mm. wide, pale yellowish somewhat striate; stem 3-4 cm. $\times 1$ mm., concolor, myceloid at base, spores $8-10 \times 5 \mu$, odor slightly alkaline.
- **lactus** var. **plithya** Alb. & Schw. Amongst moss, Clear Lake.
- **laetiana** Berk. On old logs, Victoria Beach, July. Plants caespitose, bright orange-yellow; gills with edges red, spores $7-9 \times 4-5 \mu$.
- **leptocephala** Fr. On the ground in woods, Univ. and Victoria Beach, June-July. Pileus cone, gray; odor nitrous, spores $9-10 \times 6 \mu$.
- **magasporea** Kauff. In a log, Kenora, Sept. Pileus dark brown, 2 cm. wide, stem concolor, deeply rooting in the moss, spores up to 15μ long.
- **minutula** Peck. On moss and old wood, Univ. eastward, June-Aug. Pileus minute, white; stem slender, white, covered with microscopic cylindrical hairs, spores $7-8 \times 4-5 \mu$.
- **niveipes** Murril. (as *Prunhus*). On the ground in deciduous woods, Univ., June. Pileus 2-3 cm. wide, whitish becoming tan colored on drying, slightly striate; gills white; stem 6-7 cm. $\times 2-3$ mm., whitish, nearly glabrous, myceloid at base, spores $8-11 \times 6-7 \mu$; odor none.
- **pectinata** Murril. (as *Prunhus*). In woods, Univ., Victoria Beach, June. As described by Murril except that the spores are $8-12 \times 5-7 \mu$.
- **pellianthina** Fr. In deciduous woods; Univ., July-Sept. Gills provided, especially on edges, with purple cystidia, spores $6-8 \times 4 \mu$.
- **polygramma** Fr. var. **albida** Kauff. Rather common in deciduous woods, Univ.; June-Aug. Pileus 2-4 cm. wide, white, becoming gray, striate, stem white, somewhat rooting, spores $9-12 \times 6-8 \mu$; cystidia abundant, pointed, odor nitrous.
- **pyrenoloma** Peck. On old wood, Univ.; June. Pileus dark brown; stem long.

- Myces pura* Fr. Common in mixed woods, occasional in deciduous woods, Clear Lake and Univ. eastward. Pileus with various shades of pink, lavender, and blue; cystidia present.
- *purpureofusca* Peck. Mixed woods, Victoria Beach, July. Pileus purplish-brown, stem and edge of gills concolor. Spores in dried specimens $8-9 \times 4-5 \mu$.
- *stannus* Fr. Amongst leaves and moss in deciduous and mixed woods, Univ. eastward. Pileus 1-2½ cm. wide, hygrophanous, conical, striate to umbo, gray, darker on umbo, gills grayish, broad, subdistant, adnate, stem 2-7 cm. \times 1-3 mm., concolor darker and more bold at base, smooth and hollow above, spores $8-10 \times 5-6 \mu$, a few cystidia present, odor none.
- *stylobates* Fr. On decaying bark, Univ. June. Pileus 1-3 mm. wide, white, striate, smooth or with a few hairs, stem fusiform, white, arising from a reticular flat, villous base or shallow cup-like disc, spores $7-10 \times 4-5 \mu$.
- *vulgaris* Fr. Amongst pine needles, etc. in coniferous woods in eastern Man., Sept. Pileus and stem viscid, pileus 5-10 mm. wide, dark brown, striate, gills subdecurrent, stems 2-4 cm. \times 1 mm., whitish above, darker below, spores $7-9 \times 4-5 \mu$.
- Omphalia carpanella* Fr. Common on coniferous wood, Clear Lake, around Lake Winnipeg eastward. Often forms extensive clusters, stem date-brown, spores $6-8 \times 3-4 \mu$.
- *epichysium* Fr. Occasional on old wood, Kenora, Victoria Beach, June-Sept. Pileus smoky-brown, to 4 cm. wide, stem concolor, spores $8-9 \times 4-5 \mu$, pap-shaped.
- *fibula* Fr. On mosses, Victoria Beach northward. Spores $4-6 \times 2-2 \frac{1}{2} \mu$.
- *fibuloides* Peck. On moss, eastern Man. Pileus larger than the preceding, spores $8-8 \times 4 \mu$.
- *gracilis* Quél. In Sphagnum, Ingolf, det. A. H. Smith. Pileus about 1 cm. wide, whitish becoming yellowish, stem long and slender.
- *tonneca* Fr. In deciduous woods, Univ. Sept. Pileus 10-15 mm. wide, hygrophanous, dark brown, spores $7-8 \times 5 \mu$, ovate with a curved apiculus at the end.
- *tolivaria* Peck. In mossy sandy woods, eastern Man. Pileus 7-20 mm. wide, yellowish to slightly greenish, umbilicate, gills broad, subdistant, stem concolor, spores $c. 8 \times 6 \mu$.
- *pyxidata* Uva. Amongst mosses, eastern Man., Oct. Pileus reddish-brown, hygrophanous, striate, imbricoidiform, stem concolor, spores $6-8 \times 5 \mu$. The plants appear as illustrated in Broadway's Iconographia, Fig. 260, but the spores (from a spore print) are somewhat shorter than he records.
- *trugoides* Peck. On decayed wood, Victoria Beach. Pileus hygrophanous, dark brown when moist, more or less rugose.
- *umbellifera* Fr. On the ground or old wood, Ingolf and Misaki. Pileus small, yellowish-brown, stem darker.
- *umbellula* Fr. On burnt pines, Clear Lake. Plants nearly black, except the gills, pileus hygrophanous, spores subglobose, mostly $5 \times 4 \mu$.
- Penus angustatus* Berk. On old wood, Victoria Beach eastward, June-Aug. Spores $3-5 \mu$; cystidia $50-55 \times 9-14 \mu$.
- *rudis* Fr. Common on Betula and other frondose wood, Univ. to Victoria Beach and eastward. Pileus tough, stripose, brown.
- *stypticus* Fr. form *luminosus* Buller. Occasional on old Betula, Populus, Quercus, etc., across Man. and at Saskatoon, Sask. The North American form of this species is luminous, (see 82, vol. III).
- *violaceofulvus* (Batsch) Quél. On Betula, Kenora, det. A. H. Smith. Not recorded in Kauffman's "Agaricaceae of Michigan."
- Pleurotus applanatus* Fr. On old Fraxinus, etc., Univ., abundant on lower side of fallen logs of Thuja occidentalis, West Hawk Lake, det. A. H. Smith.
- *atrocaeruleus* Fr. var. *minimus* Dearness & Babey (71, 104). On old wood, Victoria Beach. Pileus 5-10 mm. broad, spores $7-10 \times 4-5 \mu$, cystidia $35-60 \times 10-13 \mu$.
- *atropellitis* Peck. On old wood, Victoria Beach. Spores $7-9 \times 4-5 \mu$, plants otherwise similar to *P. applanatus*.
- *clavatus* Fr. On old wood, Kenora, Univ. Pileus 2½-4½ cm. wide, regular, tough, whitish, tan-colored on drying, gills crowded, narrow, white, stem eccentric, 2-4 cm. long, hollow, glebous or slightly white-silky, spores $3-4 \times 2\frac{1}{2}-3\frac{1}{2} \mu$, odor and taste none or slight.
- *craspedius* Fr. On old Populus, Univ., Victoria Beach. Pileus up to 12 cm. wide, tan to ash-color, with a wavy edge marked by reticulations, stem eccentric, spores subapical, $5-6 \mu$ in diameter. Agrees with Fries Icones, Pl. 86.

- Pleurotus elongatipes** Peck On old logs of *Acer Negundo*, Univ. Stem up to 15 cm. long, hollow, spores 4-6 μ .
- Simbelius** Fr var *regularis* Kauff On old wood Lac du Bonnet and Victoria Beach, July-Sept. Pileus hyaline-hygrophanous, then like an egg-shell in appearance, odor farinaceous, spores $4 \times 3 \mu$, sterile cells on edge of gills.
- **lignatilis** Fr On rot wood of *Fraxinus*, etc., Legat Univ. Pileus chalky white, tough, fibrous-pruinose or minutely silky, stem usually scrobiculate, odor farinaceous, spores $3.4 \times 2 \mu$.
- **ostreatus** Fr Rather common on old *Populus*, etc., Man and Sask. See Buller (82, vol. III).
- **petaloides** Fr On old *Betula*, etc., Victoria Beach eastward. Pileus spatulate, spores globular 3-4 μ , cystidia abundant.
- **pulmonarius** Fr On old *Populus*, etc., Victoria Beach, Winnipeg, June-Sept. Pileus to 8 cm. wide, smooth, not arcuate, dull white to pale subelline, flesh then white, gills broad, fairly close, not anastomosing, stem intern., spores $10-12 \times 4 \mu$ (mostly 1, $3 \times 4 \mu$), print white, odor slight. This species agrees with *Brodolobus* Fig. 293. It can hardly be *P. subvolvatus* Peck.
- **sapidus** Kauff On deciduous logs along the Red River. Pileus large, spores 9-11 \times 3-4 μ , with a blue tint in mass.
- **septatus** Fr On old *Acer Negundo*, etc., Univ. July. Pileus small, sessile, white, spores $7.9 \times 3.4 \mu$.
- **serotinus** Fr On *Betula*, etc., Legat Univ. Pileus greenish yellow, spores $4.5 \times 1.4 \mu$.
- **subpalmaris** Fr In deciduous woods Univ., July 31, 1928. Pileus 6 cm. wide, reddish with a glutinous surface raised into coarse reticulations, spores ochraceous 6-8 μ . Fig. 23 in Lloyd's Mycological Notes and Pl. 422H in Cooke's Illustrations represent the species well. Rea calls it *Pleurotus palmatus*.
- ulmarius** Fr Very common in autumn on and about Winnipeg on living or dead trees of *Acer Negundo*, Univ., etc. Can be found by looking upwards in the woods or along boulevards, for the pale project from wounds where branches have been removed or have fallen. It is a wound parasite, but apparently does not kill the trees. See Buller (82, vol. II).
- Russula albidula** Peck In deciduous woods Univ., July-Aug. Whitish plants with mild taste.
- **albidula** Peck In mixed or freestone woods, Ingolf, Univ., Victoria Beach. Similar to *R. albidula*, but taste acid.
- **alutaceus** Fr In sandy mixed woods, Victoria Beach, Sept. Plants large, purplish red; gills yellow.
- **amygdaloides** Kauff In deciduous woods; Univ., Aug. Large plants with pink to yellow colors and yellow gills.
- **aurantialutea** Kauff In deciduous and mixed woods, Univ. eastward. The late Dr Kauffman identified this species among a collection stored by my uncle in an attic at Mankato.
- **borealis** Kauff In wood, Univ., Victoria Beach eastward. Pileus brilliant red, gills yellow.
- **chamaeleontina** Fr Along the Red River and northward, July-Aug. Pileus 2-5 cm., commonly with purple and red colors.
- **decolorans** Fr Often very common under *Pinus Banksiana*, Ingolf, Victoria Beach. Pileus large, orange-red fading to yellowish, flesh becoming ashy.
- **delices** Fr Univ. north and east. Pileus up to 15 cm. wide, gills alternately long and short, bluish-green at edge and especially at attachment to stem.
- **dorsifolia** Secr. In freestone woods, Univ., in sandy woods, Victoria Beach. The flesh, gills, and stem turn reddish when cut, then black, spores $7.8 \times 6.8 \mu$, sterile cells on edge of gills.
- **emetica** Fr Recorded with some doubt in Man. Not common, perhaps because only one species of oak is present.
- **fallax** Cooke On *Sphagnum*, Norway House, Victoria Beach eastward. Disc of pileus livid, taste acid.
- **flava** Romell Common under *Pinus Banksiana* on sandy soil, Victoria Beach eastward. Pileus dull yellow; flesh ashy.
- **foetens** Fr Mixed woods, Victoria Beach. Pileus large, dingy yellowish, soon ill-smelling.
- **fragilis** Fr In coniferous areas, Victoria Beach eastward. Pileus small, fragile, bright rose to pale red.

- Russula grandisporae** Quér. Norway House to Univ. and eastward. Pileus medium in size, greenish.
- integræ** Fr. Around Lake Winnipeg and eastward. Pileus dull red to buff.
- luteæ** Fr. In frondose and mixed woods, Univ. eastward. Pileus and gills yellow.
- **nigricans** Fr. In sandy woods, Minaka, Victoria Beach. Pileus large, becoming nearly black, flesh when cut turning reddish then blackish.
- **tschudenouoides** Hauff. Ingolf, July. Pileus large, yellowish, gills white.
- **palustris** Peck. In a bog, Norway House. Pileus medium in size, purplish red, stem tinged red.
- **roseipes** (Scor.) Bres. In frondose woods; Univ., July. Pileus small, bright red, stem rose red.
- sanguinea** Fr. Univ. eastward. Pileus velvet, fragile, rusty-red, margin thin and tuberculate. Taste tardily acid, spores creamy white.
- sedida** Fr. Victoria Beach eastward. Pileus large, sordid flesh becoming blackish without first turning reddish.
- tenuiceps** Hauff. In mixed woods, Victoria Beach. Pileus large, fragile, bright red, margin striate. Taste acid.
- **testaceipes** Fr. Ingolf, Aug. Resembles *R. eximia*, but spores yellowish.
- **viridula** Fr. Victoria Beach eastward. Pileus green with many patches on surface.
- **xerampellina** Fr. Common, Ingolf Univ. Victoria Beach. Dr. Lange considered the Ingolf specimens to now be probably *R. gregaria*, but Hauffman is here named for the name.
- Schizophyllum commune** Fr. Common across Man. and Sask. on dead wood especially on stumps, trunks and large branches of *Populus* and *Betula*, sometimes on *Pyrus* larvae. The pores flattened the desiccation and cold of winter, and were found by Bailey (86) to be viable after three weeks at the temperature of liquid air (see also 82, vol. 1).
- Tricholoma aurantium** (Schaeff.) Fr. Rather common in sandy mixed woods, Victoria Beach eastward. Pileus reddish, taste rather bitter, spores $c. 5 \times 4 \mu$.
- **brevipile** B.S. Fr. In frondose woods Univ., end of July to Sept. Pileus 5-7 cm. dark brown, stem fuscescens, white fibrillose, short, brown within, spores $6-8 \times 4-5 \mu$, punctate, cystidia on edge of gills $40-65 \times 12-14 \mu$, roughened at apex.
- Tchrysenteroides** Peck. Frondose woods Univ. Pileus buff, up to 8 cm. wide, stem solid, spores $6-8 \times 4 \mu$, taste farinaceous.
- **sinuata** Fr. as in Hauffman. Agaritaceae of Michigan. Mixed woods, Ingolf, J. E. Lange and G. H. Bully. Pileus 6-8 cm. convex then plane or irregularly depressed, smooth, slightly innately fibrillose, gray olivaceous, margin paler, gills adnate or almost decurrent, narrow (1-5 mm), very crowded, creamy white becoming gray, stem sub-bulbous, $4.7 \times 1-1.5$ cm., smooth, spores $3\frac{1}{2}-4\frac{1}{2} \times 2\frac{1}{2}-3\frac{1}{2} \mu$, taste farinaceous.
- equestre** Fr. In coniferous areas, Clear Lake, Victoria Beach eastward, Sept.-Oct. A fine species, with yellow gills and variegated yellowish pileus.
- fuliginosum** Peck. In mixed woods, Clear Lake, Sept. Pileus smoky, spores $7.9 \times 4-5 \mu$.
- **humosilutens** Peck. In woods, Victoria Beach, Sept. Pileus smoky-yellow, spores when mature $6-7 \times 4-5 \mu$.
- **malaleucum** Fr. Rather common on lawns, Univ., Sept.-Oct., rarely in June. Pileus dark brown, spores $8-10 \times 6-7 \mu$, rough.
- nudum** Fr. In frondose or mixed woods, Univ. to Victoria Beach eastward, Sept., rarely in June. Plants small, lavender, spores $6-8 \times 4-5 \mu$, salmon-pink in mass.
- **panaeolum** Fr. In mixed woods, Victoria Beach and eastern Man. Pileus large, usually solitary, taste peppery or bitter; whole plant pale pinkish-tan, spores $5-6 \times 3-4 \mu$, pale flesh color in mass.
- **perocentrum** Fr. Common in frondose or mixed woods, Univ. north and eastward, Aug.-Oct. Plants scattered or in troops or interrupted fairy rings, tuined throughout with lavender, spores pinkish-lavender in mass.
- **portentosum** Fr. Mixed woods, Kenora, Sept. The plants resemble *Bromola's* *leucographa* Fig. 56, being dark and umbonate, gills yellowish.
- **rutilans** Schaeff. Victoria Beach eastward. Pileus with reddish scales on a yellowish surface.

- Tricholema spermaticum** Fr. var. *umbonatum* Lange in litt. Common in mixed woods, Clear Lake, Victoria Beach eastward. The pileus has a conical pointed umbo that is conspicuous when the plants are fresh or dried. Pileus pale gray with innate fibrils of the same color; spores 6-7 \times 5-5½ μ , no odor or taste. A very distinctive fungus, studied at Ingolf by Dr. J. E. Lange and G. R. Bishy.
- **terreum** Schaef. Common in woods, Univ. to Victoria Beach and eastward. Pileus gray, silky becoming scaly, turning dingy greenish when bruised, gills emarginate, white then pale greenish to brown, whole plant fragile, spores 5-7 \times 3-4 μ , odor and taste strongly farinaceous. These plants resemble Breussola's Fig. 74, *T. aspicularum*, more than his Fig. 75 of *T. terreum*, but Kauffman considers that these species intergrade.
- **transmutans** Peck. In deciduous or mixed woods, Univ., Victoria Beach and eastward. Pileus viscid large, reddish brown, pellicle bitter, stem solid, up to 2 or 3 cm. thick, gills becoming reddish spotted, spores 5-6 \times 3-4 μ , with a large oil drop, odor farinaceous. Kauffman reports it as sometimes forming mycorrhiza on roots of black oak.
- **turnedum** Fr. In mixed woods, Victoria Beach. Pileus about 8 cm. wide, 'turned,' gray spotted with brown, margin paler; flesh and gills emarginate, spores 4-5 \times 3½-4 μ .
- **velutinum** Fr. Under conifers, Clear Lake, Ingolf. Pileus medium in size, reddish brown, innately scaly.
- Trogia crispata** Fr. Continues on branches of *Alnus* and *Betula*, sometimes on *Salix* and other deciduous wood, Norway House, Univ. and eastern Man.

Rhodospores

- Claudopus griseus** Peck. On deciduous wood, Univ., July-Aug. Pileus 1-2 cm. broad, gray, mostly silky, hygrophanous, stem conical, eccentric, pruinose, gills gray, narrow, subdistant. Ingle, hardly reaching stem, spores 8-10 \times 6-7 μ , angular.
- **mesophacus** Murril. Common on our deciduous wood or stumps, sometimes around the base of living trees, along the Red River near Winnipeg, usually in July sometimes later. Manitoba plants described in "Fungi of Manitoba" p. 67. Easily recognized by its penetrating sulphuric odor. Spores 8-11 \times 6-7½ μ .
- **nidulans** Fr. Common in Man. on old deciduous wood in autumn, occasionally overwintering and shedding spores the following spring. Gills orange-yellow, odor unpleasant, but mild compared with the preceding.
- Clitopilus neoboracensis** Peck. Common on leaf-mold etc., in coniferous woods, Victoria Beach eastward, July-Sept. Pileus brownish, concentrically marked with dark rings; spores creamy-pink, 6-6 \times 4 μ , slightly angular.
- **subplanus** Peck. On decayed wood, Univ., July. Pileus gray, about 3 cm. wide, depressed in centre, innately silky, gills adnate-decurrent, stem hollow, spores angular 11-12 \times 8 μ .
- **subvillus** Peck. In woods, Kenora, Univ. Pileus brown, depressed or umboate, stem hollow; spores 8-10 \times 7-9 μ , odor farinaceous.
- Eccelia Imordax** Atk. In mixed woods, eastern Man., Oct. Pileus small drying subelliptic, stem more or less fistulose, spores 6-7 \times 4-5 μ .
- **Trivisa** Peck. In sandy soil at the edge of mixed woods, Victoria Beach, July. Pileus thin, 9-12 mm. broad, grayish white, silky umbonate, spores 12 \times 8 μ , often unguiculate, pink in mass.
- **polita** Fr. In deciduous woods; Univ., June. Pileus 3-4 cm. wide, hygrophanous, gray-brown umbonate, stem cartilaginous, fragile, concolor, spores rounded-angular, 8-10 μ . Resembles the illustrations by Atkinson, and Breussola, Pl. 593.
- **Tronco-albastrina** Atk. In woods; Univ., Aug. Pileus whitish, depressed, 2-3 cm. wide, gills pink, adnate-decurrent, spores irregularly angular, 10-12 \times 8 μ .
- Entoloma talcalinum** Murril. Kenora, Oct. 1. Pileus isorate-scaly, grayish brown, odor and taste strongly nitro-farinaceous, spores angular, 8-10 \times 6-8 μ . Type collected in Minnesota.
- **Tachypsetum** Fr. In mossy woods, Kenora, Sept. Pileus brownish, streaked with darker fibrils.
- **griseum** Peck. Rather common in woods, occasional in an orchard, Univ. eastward. Pileus grayish-brown, more or less hygrophanous, spores 8-10 \times 7-8 μ , with prominent apiculus.

- Entolema jubatum** Fr. In woods, Univ., Inglef, May and Sept., J. E. Lange and G. R. Bishy. Pileus 2-4 cm. wide, fibrillose-scaly, mouse-color, stem hollow, spores irregular, $c. 10 \times 6 \mu$.
- **Peckianum** Burt. In woods, Victoria Beach, June-Sept. Pileus brownish, innately fibrillose; spores $9-10 \times 7-8 \mu$.
- **Typhelopeltum** Fr. In mixed woods, Kenora. Pileus firm, gray-brown, glabrous, stem long, white, spores angular-roundish, $6-9 \mu$.
- **sericatum** Britz. In frondose woods; Univ. Pileus whitish, hygrophanous, gills white at first, spores $9-10 \times 7-8 \mu$.
- **sericeum** Fr. In open woods, Birds Hill, Univ., Victoria Beach. Pileus brownish, spores $8-10 \times 6-8 \mu$.
- **strictius** Peck. In swampy woods Victoria Beach. Pileus strongly umbonate, cinnamon-brownish, spores $9-12 \times 7-8 \mu$, nucleate, angular.
- Leptentia asprella** Fr. In woods, Univ., Victoria Beach, and eastward. Pileus 2-4 cm. wide, grayish-brown, spores sharply angular, $8-14 \times 6-8 \mu$.
- **Thermonia** Fr. In low woods, Kenora. Plants slender, spores $10-12 \times 7-8 \mu$.
- **grisea** Peck. Common in frondose woods along the Red River, July. Pileus $1\frac{1}{2}$ -2 cm. wide, gray-brown, innately silky and striatulate, somewhat hygrophanous, plane, umbilicate, spores angular, apiculate, $8-10 \mu$.
- **lamprepoda** Fr. In damp mixed woods, Victoria Beach, July. Pileus small, brownish with appressed scaly marks, spores angular, $8-13 \times 6-8 \mu$.
- **setilope** Atk. On decayed wood, Victoria Beach, June. Cystidia $50-65 \mu$ long, some on sides of gills, more on edges, gills nearly free, spores small, $6-7 \times 5-6 \mu$, rosy in mass, not angular.
- Nelusetia conica** Peck. In mixed woods, eastern Man., Sept. Pileus conical, 10-15 mm. wide, about 10 mm. high, hygrophanous, brown, silky-shining, gills nearly free, broad, white then flesh color, stem 5-7 cm. \times 1-2 mm. straight, tubular, concolor, cartilaginous, elastic, smooth, spores $7-9 \times 5-6 \mu$.
- dyschales** (Peck) Atk. In frondose woods, Univ., July. Pileus campanulate, 18 mm. wide, hairy, spores long, angular, $12-16 \times 8 \mu$.
- fuscescens** Peck. On moss in woods, Victoria Beach, July. Pileus about 2 cm. wide, campanulate, tan color darker on disc, slightly silky, gills nearly free, white then pink; stem slender, rather darker than pileus, spores $7 \text{ } \varnothing \times 5-6 \mu$, angular, apiculate.
- mammosa** Fr. In woods, Univ., Victoria Beach, July-Sept. Pileus to 4 cm., dark brown, innately fibrillose, umbonate, odor rancid, spores rose color, $10-12 \times 8 \mu$.
- Pluteus admirabilis** Peck. On wood, Univ. Victoria Beach, eastward. Pileus small, bright yellowish, with pseudostidia on surface spheroid, stalked, yellow-green, $25-35 \times 20 \mu$; spores $5-7 \times 5-6 \mu$, cystidia abundant on gills.
- **caloscepe** Atk. On deciduous wood and debris; Winnipeg and Victoria Beach. Pileus bright reddish-orange; spores $5-8 \times 4-6 \mu$, cystidia present.
- **corvinus** Fr. Common across Man. and to Saskatoon, Sask. on old wood. Cystidia pronged at apex. See Buller (82, vol. III).
- **corvinus** var. **albus** Peck. The white variety has been collected at Victoria Beach, Aug.
- **ephelias** Fr., or near. In frondose woods, Univ., July. Pileus gray, silky-shining; spores $6-7 \times 3-4 \mu$, smooth, cystidia present.
- **granularis** Peck. On old wood, Victoria Beach. Pileus 2-4 cm., yellow-brown to chestnut, granular, spores $5-6 \times 4-5 \mu$, smooth, nucleate; cystidia numerous. This is probably var. *intermedius* Kaulf.
- granularis** var. **umbonellus** Atk. On decayed wood, Univ., Victoria Beach. Pileus villous, cystidia yellow, giving color to the edges of the gills.
- leucinus** Fr. On decayed wood, Norway House to Univ. and eastward. Pileus 2-6 cm. wide, bright honey-yellow to brownish with yellow surface, cells $250-800 \mu$ long, fusiform; spores $6-7 \times 5 \mu$, cystidia on sides and edge of gills.
- longistriatus** Peck. On decayed wood, mudflat, etc., Univ., Victoria Beach, usually in June or July. Pileus ashy-brown, long striate, stem striate, pulverulent, spores $6-8 \times 5-6 \mu$.

- Pluteus nanus** Fr. Occasional on old wood, Univ., June-Sept. Pileus amber in centre, paler near edge, stem solid, pellucid white, spores globose, $4\frac{1}{2}$ - $6\frac{1}{2}\mu$.
- **nanus var. lutescens** Fr. The variety with yellow stem is rare, Univ.
- **roseocandidus** Atk. On the ground in low woods, Univ. Pileus white, striate on margin, spores subglobose, $6-8 \times 6-7\mu$, cystidia very few.
- **salicinus** Fr. On old wood, Univ., July-Sept. Pileus dark brown, broadly umbonate; stem slightly blue-green at base, becoming greener as it begins to dry, cystidia pronged at apex, up to 85μ long, spores $7-9 \times 5-6\mu$.
- sterilmarginatus** Peck. On wood, Victoria Beach, July. Pileus whitish, about 15 mm. wide, with a close tomentum, gills barely reaching margin of pileus, slightly crested at edges, spores globose, about 6μ , often guttulate.
- tomentosulus** Peck. On damp wood, Univ., Victoria Beach, June-Aug. Pileus whitish, tomentose; spores $6-7 \times 4\frac{1}{2}-6\mu$, cystidia bottle-shaped.
- umbrosus** Fr. On piles of sawdust and chips, Kenora, Minaki, Sept.-Oct. Pileus large, amber, gills brown on edges.
- Volvaria glaucocapitata** Fr. In an alfalfa field, Univ., June. Pileus viscid, large, margin striate, spores $12-10 \times 7-8\mu$, no cystidia found, volva thin.
- **pubescentipes** Peck. In mixed woods, Ingoß, Aug. Pileus white, small, stem densely pubescent.
- **pusilla** Fr. Not uncommon on the ground in damp woods, Univ., Victoria Beach, July-Sept. Pileus 1-3 cm. wide, white becoming slightly rosy, darker on umbo, mostly silky, not viscid, gills free, crowded, stem solid, white, glabrous, volva white to brownish, lobed, spores $6-8 \times 3\frac{1}{2}-4\frac{1}{2}\mu$, cystidia $10-70 \times 12-20\mu$.
- speciosa** Fr. Occasional on rich soil, Univ. northward, June-Oct.
- **striatula** Peck. Infrequent on lawns, Univ., July-Sept. Pileus white, 3-6 cm. wide, stem rather long, spores $6-8 \times 5-6\mu$.

Ochnosporae

- Bolbitis fragilis** Fr. Rare in low woods, Univ.; June-July. Stem glabrous, yellow, spores $c. 12 \times 6\mu$. See Buller (82, vol. III, and 87).
- **tener** Berk. Infrequent on lawns in wet weather in summer, Univ., Winnipeg. The gills dissolve, stem long, fascic, spores $12-16 \times 8-10\mu$.
- **vitellinus** Fr. On dung and debris in woods, Univ., June-July. Stem white, scurfy, spores $11-13 \times 6-7\mu$.
- Cortinarius acutus** Fr. In woods, Victoria Beach, Sept. Pileus small, whitish, striate, with a pointed umbo.
- albiviolaceus** Fr. Rather common in mixed woods, occasional in frondose woods, Univ., Victoria Beach, eastward. Whole plant pale violet; stem thickened at base, peronate.
- **annulatus** Peck. In woods, Univ. eastward, July-Sept. Pileus brown, minutely scaly-odor of radish, spores subglobose, rough, about 7μ .
- **anomalous** Fr. In mixed woods, Victoria Beach, eastern Man. Pileus rather small, yellow-brown, stem, gills and flesh bluish-lavender; spores rough, $7-10 \times 6-7\mu$.
- **tangentatus** Fr. Victoria Beach, Sept. possibly *C. lilacinus*.
- **armillatus** Fr. Common, perhaps associated with *Betula*, Victoria Beach, eastern Man. A fine species, marked by the cinnamon-red bands on the stem.
- **Atkinsonianus** Karst. In mixed woods, Victoria Beach, Sept. A striking species, with waxy yellow pileus, and violet stem, flesh and gills, spores almond shaped, slightly rough, $12-18 \times 6-8\mu$.
- **Thadlus** Peck. In mossy woods, Clear Lake, Sept. Pileus small, brown, hygrophanous: stem distinctly mottled by the whitish veil, spores $8-11 \times 6-8\mu$.
- brunneofulvus** Fr. In woods, Minaki, Univ. Pileus dark brown, stem with a whitish band near centre, spores $8-10 \times 6\mu$, rough.
- **cinnabarinus** Fr. In woods, Victoria Beach, Aug. Pileus cinnamon-red, spores $5-6\frac{1}{2} \times 7-8\frac{1}{2}\mu$, slightly rough.
- cinnamomeus** Fr. In a Sphagnum bog, Ingoß, Kenora; Sept.-Oct. Pileus small, cinnamon color; gills and stem yellow.

- Cortinarius cinnamomeus* var. *croceus* (Schaeff.) Fr. In a bog; Ingolf; J. E. Lange and G. R. Bisby, Sept.
- Telariolus* Fr. In deciduous woods, Univ. Pileus large, orange-buff, gills cross-arranged on edges, spores 9-11 \times 6 μ .
- *coloratus* Peck. In woods; Univ. Victoria Beach. Pileus cream color to reddish-tan, spores 9-12 \times 5-7 μ .
- *communis* Peck. In frondose or mixed woods, Ingolf, Univ., Aug.-Sept. Pileus whitish, rather small, spores 9-11 \times 4-5 μ .
- *ferrugineocolor* Kauff. In woods, Univ. Stem peronate by a saffron veil, spores 8-8½ \times 6-7 μ , rough.
- croceonius* Fr. In Sphagnum, Ingolf, J. E. Lange & G. R. Bisby. Pileus small, conico-campulate with a persistent umbo; stem long, fibrillose, spores 8-9 \times 4-5 μ .
- cylindripes* Kauff. Amongst Sphagnum, Ingolf. Pileus viscid, yellowish brown, stem viscid, bluish, spores 13-15 μ long.
- decoloratus* Fr. In frondose woods, Univ. Pileus 4-7 cm. wide, viscid, yellow-brown, gills caesius then cinnamon, spores subglobose, 7-9 \times 6-7 μ .
- *distans* Peck. In open deciduous woods, Univ., July-Sept. Pileus brown, gills broad, distant, spores 8-10 \times 6 μ , rough.
- *elegantior* Fr. In mixed woods, eastern Minn., Sept. Pileus very viscid, yellow to ferruginous, gills yellow at first, edges eroded; stem 4-7 \times 1-2 cm., yellow with rusty fibrils, with marginate bulb, spores 13-15 \times 6 μ , rough.
- terugatus* Fr. In woods; Univ., Victoria Beach, Sept.
- Muscoviolaceus* Peck. In woods, Minn., Sept. Pileus small, 1-2 cm. wide, brownish-violet, stem concolor, spores 8-10 \times 4-5 μ .
- glandicolor* Fr. In Sphagnum, Ingolf, J. E. Lange and G. R. Bisby. Plant small, dark brown, spores 8-9 \times 5-6 μ .
- *hamitrichus* Fr. In woods, Minn. Pileus small, umbonate, cinnamon-color with white fibrils; spores 5-8 \times 4-5 μ .
- herpeticus* Fr. In damp woods; Univ., Victoria Beach, July-Aug. Pileus 4-5 cm. wide, viscid, pellicle separable olive becoming brownish-spotted, gills olive-purplish at first; stem 4-5 \times 1 cm., bluish-purple, fibrillose, bulb marginate-depressed, with greenish fibrils; spores 8-10 \times 5-6 μ , slightly rough.
- *impolitus* Kauff. In sandy coniferous woods, Victoria Beach. Pileus 1-2 cm., conic, umbonate, dark brown, stem with a whitish ring, spores 8-9 \times 4 μ .
- *infractus* (Pers.) Bres. In woods, Victoria Beach. Taste bitter, spores c. 8 \times 6 μ , punctate.
- blacinus* Peck. In low frondose or mixed woods, Univ. eastward. Whole plant lilac, the color persisting on drying; stem bulbous, spores 8-10 \times 5-6 μ .
- ignarius* Peck. On decayed wood, Victoria Beach, Sept. Pileus 1-3 cm. wide, cinnamon-brown, umbonate, stem with a white zone, spores 6-7½ \times 4-5 μ .
- Moerstedii* Peck. Under conifers, Kenora. Pileus 7 cm. wide, hygrophanous, reddish-brown, innately fibrillose, somewhat concentrically zonate at margin, stem hollow, brown, yellow within.
- *revellatus* Fr. Common in autumn, rare in spring, in coniferous areas, Victoria Beach eastward, rarely in frondose woods, Univ. Stem with scaly bands of dried gluten, spores rough, 11-13 \times 6-7 μ .
- *multiformis* Fr. In woods, Victoria Beach. Pileus large, orange-brown, viscid, spores 8-10 \times 5 μ .
- *olivaceus* Peck. Amongst moss, Minn. Pileus viscid, olive-gray brown, 3½ cm. wide; stem white and purple, bulbous at base, spores 10-12 \times 5-7 μ , rough.
- *pholideus* Fr. In damp coniferous woods, Kenora, Victoria Beach. Pileus and stem scaly, brown, apex of stem violet, spores 6-8 \times 3-5 μ .
- *pharniger* Fr. In deep coniferous woods, Victoria Beach. Pileus pinkish-cinnamon, large, fibrillose hairy; stem clavate bulbous, pale grayish-olac, spores 7-10 \times 5-6 μ .
- *pluvius* Fr. In Sphagnum, Ingolf; J. E. Lange and G. R. Bisby. The fungus fits Ricken's description. Pileus small, bitter, spores 7-8 \times 5 μ .

- Cortinarium purpureascens** Fr. On the ground in mixed woods; Ingolf, J. F. Lange and G. R. Bisby. Pileus viscid, purple then brown, stem bulbous, spores $9-10 \times 5-6 \mu$, rough.
- **purpureophyllum** Kauff. In mixed woods, Victoria Beach eastward. Pileus 3-7 cm., reddish-tan, darker on disc; viscid, violet then brown, stem whitish, silky, with a marginate bulb, spores $11-13 \times 7-9 \mu$, rough.
- Trophanoideus** Fr. or near. In coniferous woods, Victoria Beach. Plants small, yellow-greenish everywhere, densely innately silky, edge and taste none, spores $7-8 \times 5-6 \mu$.
- Trubricinus** Fr. In woods, Minax. Pileus dark reddish-brown, stem rusty-brown, spores $8-10 \times 5-7 \mu$, rough.
- Trubrocinerus** Peck. In sandy woods, Victoria Beach. Pileus reddish-brown, stem silky, with an oval bulb, spores $9-12 \times 6-8 \mu$.
- sanguineus** Fr. Not common, Victoria Beach. Plants red throughout, taste somewhat of radish, spores $6-8 \times 4-5 \mu$, slightly rough.
- **semisanguineus** Fr. Common in coniferous woods, Clear Lake, Victoria Beach, eastern Man., Aug.-Sept. Gills blood-red.
- **sphaerosporus** Peck. In mixed woods, Hemora, Victoria Beach. Pileus and stem with a straw-yellow, viscid pellicle, spores $5-8 \times 6-6 \mu$, rough.
- **subpulchrifolius** Kauff. In woods, Bowna River, Univ. Pileus 4-10 cm., tan-gray streaked with brown, gills purple, broad, substantial, stem tawny, perinate, sub-annulate, spores $9-12 \times 6 \mu$, rough.
- subpurpureascens** Fr. In mixed woods, eastern Man. Pileus 3-7 cm., viscid, blue-violet then chestnut-brown, margin incurved, flesh thick, yellowish, gills blue-purple then brown, broad close, rounded at stem, stem $4-6 \times 1 \frac{1}{2}$ cm., purplish outside and inside, with an emarginate bulb, spores $8-9 \frac{1}{2} \times 5-6 \mu$, slightly rough.
- uraceus** Fr. Common in woods, Clear Lake, Univ. and eastern Man. Pileus rather small, very dark brown.
- **vellicopia** Kauff. In mixed woods, Victoria Beach. Pileus and stem blue-greenish-violet at first, then yellowish-tan, cortina copious; bulb marginate; spores $10-12 \times 5-6 \mu$, tuberculate, apiculate, somewhat fusiform.
- **violaceus** Fr. Rare in coniferous woods, Ingolf, Hemora, Norway House, Victoria Beach. A beautiful plant, with a metallic deep violet color. A specimen or two can usually be found in August or September for example, a week spent in the woods at Norway House in 1881 resulted in finding four specimens: three near each other, one solitary in another location.
- Crepidotus applanatus** Fr. On wood, Ingolf. Pileus whitish, glabrous, sessile, spores spherical, $4-6 \mu$.
- **calolepis** Fr. On old Populus, etc., Univ. Pileus sessile, brown-tomentose, spores $5-6 \times 4-4 \frac{1}{2} \mu$.
- cinnabarinus** Peck. Not rare on old logs of Populus, Matlock and Univ., after rains in July or early August. Pileus 6-16 mm. wide, scarlet, margin incurved, gills sinuate, edges red, spores brown, $7-8 \times 5-5 \frac{1}{2} \mu$. This attractive fungus has been reported also from the central-eastern U.S.A.
- **doersalis** Peck. On old logs, Univ., Victoria Beach, July. Pileus yellowish with tawny fibrillose scales, gills bright yellow, approaching orange-yellow at first, spores spherical, about 6μ , nutate.
- **fulvotomentosus** Peck. On old Populus, etc., Univ., Victoria Beach. Pileus hygrophanous, tawny tomentose-scaly, gills fibrillate on edge, spores $8-10 \times 6 \mu$.
- **haerens** Peck. On old Populus, Univ., June-Oct. Pileus viscid, hygrophanous, spores $7-10 \times 5-6 \mu$.
- **herbarum** Peck. On old Populus, etc., Bowna River (det. C. H. Kauffman), Univ. Pileus small, spores $6-8 \times 4 \mu$.
- malachius** Berk. & Curt. On old wood, Victoria Beach; July-Aug. Pileus whitish, sessile, gills broad; spores spherical, $c. 6 \mu$ in diam.
- **mellis** Fr. On deciduous wood, Univ. Pileus sessile, glabrous, tan, spores $6-8 \times 4-5 \mu$.
- **midulana** (Pers.) Quel. On old boards of Pinus in woods, Univ. Pileus $2 \frac{1}{2}$ -5 cm. long \times 2-4 cm. wide, yellowish, soft, innately silky, margin involuted, gills orange-yellow, spores in spore print $4-5 \times 3 \mu$.

- Crepidotus putrigenus* Berk. & Curt. On decaying wood, Victoria Beach. Pileus rather large, villose, whitish, gills broad, spores spherical, 5-7 μ .
- sepulchralis* Peck. Rather common on old *Populus*, etc., rarely on coniferous wood, L'nv to Victoria Beach and eastward. Pileus stipitate, stem central when growing on top of a log, otherwise eccentric or lateral, pileus minutely wooly, 5-12 mm broad, gills imbricate on edges, spores 9-10 \times 8 μ .
- versutus* Peck. On wood, Univ. Probably common.
- Flammula alnicola* Fr. (except on old stump of *Populus*, Ingolf, J. E. Lange and G. R. Bushy. Pileus yellow, stem coriaceous, somewhat rooting, spores 8-10 \times 4 μ .
- *flavida* Fr. On wood. Mack. L'nv. Pileus yellowish with a whitish cortina below, spores 8-10 \times 4-6 μ , cystidia few, clavate.
 - *gummosa* Fr. (in wood and sand, L'nv. Pileus viscid tan-colored, spores 6-7 \times 4 μ , cystidia on sides and edges of gills, c. 50 \times 14 μ .
- Planeta* Fr. In coniferous woods, Victoria Beach. Pileus 3-6 cm. wide, brown on disc, pale at margin, spores 6-8 \times 4 μ .
- pusillus* Fr. In coniferous woods, Ingolf, J. E. Lange and G. R. Bushy. Pileus dark rusty brown, gills with rusty penetrating spots.
- polychroa* Berk. (On decayed wood, Birds Hill and eastern Man. Pileus viscid, 3-6 cm. wide, orange to yellow, olive-green on margin, gills with purplish-olive tinge, spores 6-8 \times 4-5 μ .
- populeus* Fr. Common on coniferous wood, sometimes on wood of deciduous trees. Clear Lake. L'nv. Victoria Beach and eastward. Pileus dry, tawny, spores 6-8 \times 4-5 μ .
- *spumosa* Fr. Rather common on coniferous areas, and on sand at L'nv. Pileus sulphur-yellow, cystidia present, spores 6-8 \times 4-5 μ .
- Galera bulbifera* Kauff. On horse dung, L'nv. and Victoria Beach. Not uncommon on dung cultures in the laboratory. Stem bulbous at base, spores 12-15 μ long. Illustrated by Buller (82, vol. V, 366).
- capillipes* Peck. In grassy woods, rarely on lawns, L'nv. and eastern Man. Stem filiform, flexuous, capitate sterile cells on edge of gills, spores 9-12 \times 5-7 μ .
- cyanocephala* Kauff. In mossy mixed woods. Victoria Beach. July. Pileus 8-12 mm wide, steriate striatulate, hygrophanous, gills minutely white floccose on edges; stem 5-7 cm. \times 1 1/2 mm. greenish-blue, especially brown, spores 8-10 \times 4-6 μ , sterile cells on edges of gills 20-30 \times 8-10 μ , not capitate.
- *dukeensis* Breckle. Amongst grass on sandy soil. Birds Hill, late Sept., det. A. H. Smith. Spores 14-18 \times 9-10 μ , sterile cells not capitate. Described by Breckle. Fung. Dukeensis, 583, but not formally described by him.
 - *Hypocrepium* Fr. Common on moss in numerous areas, Clear Lake, Victoria Beach eastward. Spores mostly 8-10 \times 5-6 μ , as Kauffman reports, according to Rea 11-15 \times 6-8 μ .
 - *Hypocrepium* var. *Sphaerium* (Pers.) Fr. In a bog, Ingolf, J. E. Lange and G. R. Bushy. Pileus larger than preceding; stem very long.
 - *lineata* Peck. On sand, at an empty ore house, L'nv. Pileus hygrophanous, cinnamon, stem coriaceous hollow, slightly pruinose at apex, gills white on edges, sterile cells capitate, spores 13-18 (rarely longer) \times 8-10 μ .
 - *pulegiaca* Gill. On cow dung and on the ground in pastured woods, L'nv. Pileus smooth, stem slightly pubescent, sterile cells capitate, spores 9-12 \times 5-7 μ .
 - *rapida* Fr. On sand, at L'nv., J. E. Lange and G. R. Bushy. Pileus ochraceous when dry, spores 8-10 \times 4-5 μ .
 - *tenax* Fr. Common amongst grass in Man. Spores 12-16 (20) \times 6-9 μ .
 - *tenaxoides* Peck. On debris, etc., L'nv. eastward. Pileus soft, hygrophanous, sterile cells capitate; spores 7-10 \times 4-6 μ .
- Hebeloma albidulum* Peck. In woods, Univ. eastward. Pileus pale tan, stem more or less bulbous at base, spores 9-12 \times 5-6 μ , cystidia cylindrical c. 70 \times 6 μ .
- *Calvinii* Peck. Rather common, Victoria Beach. The plants grow in the fine white sand along the beach, amongst the few herbs or shrubs present. "The mycelium binds the sand into a globose mass which adheres to the base of the stem."
 - *crustuliniforme* Fr. In open deciduous woods, L'nv. Pileus tan, odor strong of radish, gills with beads on edges; spores 10-12 1/2 \times 5-7 μ , apiculate.

- Hebeloma gregarium** Peck In grass or under shrubs, Univ., Oct. Pileus 1½–2½ cm. wide, even, smooth, tan, darker on the broad umbo; gills emarginate, edge white, stem 4–6 cm. × 2–5 mm. hollow, brownish, mealy above, with a cortina at first, odor of radish when crushed, cystidia none; spores 9–11 × 5–6 μ.
- **Thiarnale** Bres. On the ground in woods, Univ. The plants look like *Bresadola*'s illustrations, odor none, taste slightly bitter, spores 11–13 × 6–7 μ.
- Trongicaudatum** Fr. In Sphagnum bogs, Ingolf, Norway House
- mesophanum** Fr. In sandy woods, eastern Man. Pileus 1–3½ cm. wide, conic-campylochaete when young, tan with darker silky fibrils; gills whitish on edges, stem solid except for a small tubule, somewhat cortinate; spores 8–10 × 3–6 μ. *H. pascoense* may be included here, some of the specimens were collected in June.
- **Tetmile** Kauff. In mixed woods, Clear Lake. Spores 10–12 × 6–7 μ, sterile cells on edges of gills clavate, apex thickened.
- **sinapisans** Fr. In woods; Victoria Beach. Stem short, scaly, spores with hyaline apiculus at each end, odor of mustard or radish.
- **velatum** Peck. In woods, Univ. eastward, Sept. Pileus glutaceous somewhat viscid, stem hollow, white at first, with remains of cortina, spores 9–11 × 5–6 μ, cylindrical sterile cells on edges of gills.
- Inocybe aeternaspera** Quél. In mixed woods, Victoria Beach; July–Aug. Pileus about 3 cm. wide, stem with emarginate bulb, spores 9–11 × 6–8 μ, with large projections, cystidia abundant, c 50 × 18 μ.
- Tatipes** Atk. In mixed woods, Victoria Beach, July. Pileus small, fibrillose scaly, stem dark, spores 10–12 × 4–5 μ, smooth.
- brunnescens** Earle. In sandy woods, Victoria Beach. Pileus 3½–5½ cm. wide, livid cinnamon-brown, darker at margin and where bruised, covered with a matted woody tomentum, plane with a slight umbo; gills adnate, close, edge paler, stem 2–3 cm. × 4–7 mm., yellow-brown, spores subreniform, 7.0 × 4–5 μ, cystidia none, but tufts of sterile cells and also long hair-like cells on edges of gills.
- **caesariata** Fr. In damp woods, Univ., Victoria Beach. Spores 8–10 × 4–6 μ, cystidia none; sterile cells on edges of gills.
- **Cookii** Bres. In deciduous woods, Univ. Stem with a bulb, spores 8–10 × 4–6 μ, sterile cells on edges of gills.
- **corydalina** Quél. In deciduous woods, Univ. Pileus to 7 cm. wide, sooty-green on disc, odor strong, stem bulbous at base, solid, with greenish tint when cut, spores 8–9 × 5–6 μ, cystidia on gills.
- Teuthelodes** Peck. In frondose woods, Univ. Spores 9–10 × 5 μ, cystidia 10–70 × 14–18 μ, crystallate at apex.
- fastigiata** Des. Exceedingly abundant in damp weather in July and Aug. in frondose woods across southern Man. Pileus very conical yellow, spores 9–12 × 5–6 μ.
- fastigiella** Atk. In frondose woods, Univ.
- focculosa** Berk. In woods along the Red River, to Victoria Beach, and eastward
- geophylla** Fr. Common in frondose or mixed woods; Univ. to Victoria Beach and eastward. Pileus white.
- **geophylla** var. *interitica* (Wenm.) Stev. On the ground in low woods, Ingolf; J. E. Lange and G. R. Busby. The pileus is reddish.
- **glaber** Kauff. In mossy sandy woods; Victoria Beach. Pileus spotted when moist, silky yellow-brown, stem short, silky, gills white-fimbriate on edges, spores 8–10 × 4–5 μ, sterile cells on edges of gills.
- **Godeyi** Gill. In woods; Victoria Beach. Pileus turning reddish, spores 9–10 × 5–6 μ, cystidia thick-walled.
- **griseocabrera** (Peck) Earle. In sandy coniferous woods east of Beausejour. Pileus 4–10 mm. wide, minutely silky to appressed scaly, chestnut-brown, umbonate, stem 10–20 × 1 mm., yellowish-brown, silky, gills clay-color, emarginate, spores 9–12 × 5–6 μ, cystidia with apex crystallate.
- **jurana** (Pat.) Sacc. Along grassy paths in frondose woods; Univ. Pileus large, white-rose, with a semi-fragrant mealy odor; spores 10–13 × 6–7 μ, sterile cells clavate.
- **lacera** Fr. In woods, Kenora. 10–15 × 4–6 μ.

- Inocybe thanatophora* (Bolt.) Sacc. On decayed wood, Pinawa. Gills rufescent, spores ϵ $10 \times 7 \mu$, covered with blunt projections.
- *leptocystis* Atk. In mixed woods, Pinawa. Pileus 2½–3½ cm. wide, discous-convex, umbonate, tan-brown, stem yellowish, solid, spores $8-10 \times 4-5 \mu$, inequilateral, cystidia ϵ $80 \times 12 \mu$, thin-walled.
- *leptophylla* Atk. Rather common in mixed woods, Victoria Beach. Pileus squarrose-convex, spores with large nodules, cystidia none.
- Blasium* (Boud.) Kauff. Not uncommon in frondose or mixed woods, Univ. Pileus small, lilac-purple.
- minima* Peck. In woods, Norway House, det. C. H. Kauffman, Univ. Victoria Beach. Pileus 9–16 mm. wide, cone then umbonate, spores $7-10 \times 4-5 \mu$.
- *palldipes* Ell. & Ev. In frondose woods, Univ., Victoria Beach. Stem whitish, spores $7-8 \times 5 \mu$, cystidia abundant, thick-walled.
- pyridioides* (Pers.) Bres. In frondose woods, Univ. Flesh of pileus and stem turning red when cut, odor spicy, spores $9-10 \times 6 \mu$.
- *rimosa* (Bolt.) Pat. In sandy woods of *Pinus Banksiana*, east of Beaupour. Pileus clay-color, fibrillose-rimose, subconical on disc, somewhat umbonate, 1½–3 cm. wide, gills almost free, but with decurrent ones on stem, broad, distant, whitish, stem concolor, silky, pruinose above, spores $9-11 \times 5-6 \mu$, cystidia on sides and edges of gills.
- rimosoides* Peck. In open frondose or coniferous woods, Univ. and eastern Man. Pileus with a prominent, sometimes subacute, umbo, spores $7-10 \times 4-5 \mu$, cystidia none.
- rufidula* Kauff. In low woods, Ingolf, Univ., Victoria Beach. Pileus small, spores $9-11 \times 5-6 \mu$, cystidia abundant, apex often crystallate.
- sindensis* Fr. In frondose woods, Univ. Odor strong, spores $9-10 \times 6 \mu$, cystidia 15–20 μ broad.
- subdecurrens* Ell. & Ev. In sandy mixed woods, eastern Man. Plants gregarious to sub-compact, gills decurrent by a line, stem hollow, spores $9-11 \times 5-6 \mu$, cystidia none.
- substricta* Kauff. Common in frondose or mixed woods, Univ. to Victoria Beach and eastward. Pileus 1–3 cm. wide, umbonate, gills white at first, stem rufous, spores $8-10 \times 5-6 \mu$, cystidia on sides and edges of gills.
- subultravires* (Peck) Earle. In sandy mixed woods, east of Beaupour. Pileus cone then umbonate 2–3 cm. wide, with agglutinated fibrils, stem solid, sub-bulbous, spores $7-9 \times 4-5 \mu$, cystidia on sides of gills up to $70 \times 15 \mu$, stouter on edges of gills, thick-walled, with yellow contents.
- *turneriana* Bres. In open sandy woods, Victoria Beach. Pileus gray-tan, silky-fibrillose to subconical umbonate, 2–3 cm. wide, stem concolor, 20–40 \times 4 mm., bulbous at base; spores very angular tuberculate, $7-9 \times 5-6 \mu$, cystidia on sides and edges of gills, ϵ $65 \times 16 \mu$, wall 1μ thick, apex crystallate.
- violaceofolia* Peck. In woods, Indian Bay, Univ. Pileus 10–15 mm. wide, subconical, silky; stem and young gills violet, spores $9-10 \times 4-5 \mu$, cystidia ϵ $45 \times 14 \mu$.
- virgata* Atk. In frondose or mixed woods, Univ. eastward. Pileus 2–3 cm. wide, chestnut-brown on umbo, paler tan elsewhere, becoming sub-rimose, gills close, ascending; stems 20–40 \times 3–5 mm. tan with a white scurf; spores $7-10 \times 5-6 \mu$, cystidia thick-walled, often crystallate at apex.
- Masocoria bellula* Peck. On old coniferous wood, Victoria Beach. Pileus 1–2 cm. wide, rusty-brown; spores $5-6 \times 3-4 \mu$.
- *conspicua* Fr. Common on old deciduous wood, Ingolf, Univ., Victoria Beach. Pileus 1–2½ cm. wide, hygrophanous, the color of ripe olives and striate when moist, appearing silky under a lens; spores subcircular, $5-8 \times 4 \mu$.
- *ignicola* Peck. On decayed *Populus* and other wood, including coniferous wood and meristem, Univ. to Victoria Beach and eastward. Pileus small, umbonate, hygrophanous, somewhat striate when moist, spores $7-8 \times 5 \mu$.
- *Myasotis* Fr. In *Sphagnum* bogs, Ingolf (coll. and det. J. E. Lange), Minaki, Whittemouth. A fine species, with olivaceous cap and very long stem, spores 15–20 \times 8–9 μ . Merrill (N. A. Flora, 3, 185) found no North American specimens and Kauffman does not include it in the *Agaricales* of Michigan. It is common in "moosebogs," but was undetermined until Dr. Lange saw it.

- Mauzeria pediformis* Fr. Amongst grass, Univ. June-July. Pileus dry, spores $11-14 \times 7-8 \mu$, cystidia on edges of gills.
- "*sermifera*" of Cook's Illustrations, Pl. 509A? Common on old deciduous wood, Univ. Pileus chocolate-blackish and glutinous when fresh, fading on drying, 1-2 cm. wide, stem 2-3 cm. long, r 4 mm wide at base, 2 mm. at apex, gray-brown, granular-scurfy, gills whitish then brown, ascending, spores $7.9 \times 4-5 \mu$, smooth, brown, sterile cells on edges of gills c $40 \times 10 \mu$. This is not *M. asperula* Berk. & Broome of the description, but the plants are so like Cook's illustrations that they were recognized at a glance.
- *serotio-arbicularis* Fr. In lawns, Morden, Univ. Pileus viscid, spores $12-16 \times 7-10 \mu$.
- *talparia* Fr. Amongst moss, Kenora. Pileus campanulate, slightly scaly, 1 cm. wide, stem brownish, rather cartilaginous, spores $9-11 \times 5-6 \mu$, sterile cells on edge of gills sometimes hair-like.
- *tabacina* Fr. In grass, Victoria Beach. Pileus 7-25 mm. wide, very hygrophanous, dark tobacco-brown when moist, fading to umbelline, gills white at edges, stem brown, with whitish fibrils, tapering downward, spores $6-7 \times 4 \mu$.
- *ternatilis* (Peck) Sacc. On old wood and debris, Univ. Victoria Beach, May-June. Pileus 1-3 cm. wide, hygrophanous, stem cartilaginous, hollow, scurfy, 2-4 mm. wide, spores $6-9 \times 4-5 \mu$, sterile cells on edges of gills capitate.
- *terracti* (Fr.) Quél. In a grassy sandy field, Victoria Beach. Pileus becoming plane, yellowish-brown, spores $13-16 \times 8-9 \mu$, sterile cells on edges of gills more or less capitate.
- Phallia involutus* Fr. Rather common in woods, Univ. eastward. It is sometimes abundant in the frondose woods along the Red River. $7-10 \times 5-6 \mu$.
- *peruolens* Fr. Rarely seen on deciduous wood or sawdust, Gimli, Ingolf.
- Phallia adiposa* Fr. Occasional on old wood, Ingolf, Munnich, Victoria Beach.
- *albocrenulata* Peck. One specimen from a wound at the base of a living *Asyr. Nyrsoide*, Winnipeg. Pileus large, viscid tawny-reddish appressed scaly, spores fusoid $10-14 \times 5-6 \mu$, cystidia not seen.
- *ascomata* Peck. On very decayed wood or amongst leaves, Indian Bay, Univ. Victoria Beach. Pileus hygrophanous, chestnut-brown fading to yellowish, spores $6-9 (10) \times 4-5 \mu$, sterile cells on edge of gills. Three collections examined by L. O. Overholts, one noted as intermediate with *P. confusum*. He (Ann. Missouri Bot. Gard. 14: 128) knew it only from Pasadena, Calif., in 1927.
- *hattaria* Fr. Common in frondose woods, Univ. June to mid-July. Pileus 1-3 cm. wide, smooth, hygrophanous, buff, spores $7-9 \times 4-5 \mu$.
- *capitata* (Pers.) Fr. Not uncommon on the ground in coniferous woods, Ingolf, Kenora. Stem with a suggestion of a volva, spores rough, $12-16 \times 8-10 \mu$.
- *confusum* Fr. Common on rotted, mossy trunks of *Betula alba* var. *suppurifera* Populus, etc., Univ. Victoria Beach and eastward, May-Aug. $5.8 \times 4-6 \mu$.
- *destructans* Bond. On old wood, Gimli. T. Johnson. Pileus pallid, spores $7\frac{1}{2}-9\frac{1}{2} \times 4-6 \mu$.
- *discolor* Peck. On old wood, Univ. Victoria Beach. $8\frac{1}{2}-10 \times 4-6 \mu$.
- *durandae* Peck. From burned stumps, Univ. Pileus yellowish 2-5 cm. wide; spores $6-8 \times 3-4 \mu$. The plant resembles a *Stropharia*, and Dr. Overholts suggests that the small form is comparable with *S. obsoleta* Fr.
- *erecta* Fr. Three collections in leaf-mold, Victoria Beach. Spores $10-15 \times 6 \mu$, cystidia present.
- *serinacola* Peck. Occasional on old deciduous wood or fallen branches, Univ. eastward. A distinctive reddish, scaly, small species, spores $6-8 \times 4-5 \mu$.
- *johnsoniana* (Peck) Atk. Not uncommon in leaf mold in deciduous woods, Univ. Pileus yellowish, with few or no scales, spores definitely purple.
- *marginata* (Batsch.) Fr. On old wood and sawdust, Univ. eastern Man. It has been especially common in a poorly lighted ice-house on sawdust, and these plants are often very caespitose, the stems abnormally elongated. $7-10 \times 4\frac{1}{2}-6 \mu$.
- *mutabilis* (Schaeff.) Fr. On old wood, Victoria Beach June. Pileus 2-3 cm. wide, smooth, stem scaly, spores $6\frac{1}{2}-8 \times 4-5 \mu$, smooth, cystidia none.
- *impressatilis* Fr. In moss, Clear Lake. Pileus 10-15 mm. wide, striate half way to centre, very hygrophanous, drying first at the centre, gills adnate, anastomosing near apex of stem, spores $8-10 \times 3-6 \mu$, truncate, sterile cells on edges of gills.

- Pholiota piceorum** (Pers.) Fr. On the ground, Univ., June. The pileus fades to whitish. Not commonly found in Man.
- **Trigidipes** Peck. On old wood, Univ. Dr. Overholts was not sure but that the specimens belong in *Famennia*. Spores $7.8 \times 4-5 \mu$, cystidia fusiform, brown, $25-35 \times 9-12 \mu$.
- **Trugosa** Peck. On sawcut in an ice-house, Univ. Plants persistently ferruginous, spores $9-12 \times 5-6 \mu$, smooth.
- **Schraderei** Peck. Overholts. In woods, Univ., Victoria Beach. This large and striking species was reported in "The Fungi of Manitoba" as *P. fulvopurpurea*, but Dr. Overholts points out it cannot be that, because there are abundant cystidia. The pileus and stem, however, are scaly as in *P. fulvopurpurea*. The spores are purple, and one looks for it at first in *Stropharia*, where Peck placed it.
- **spectabilis** Fr. On fallen logs of *Acer Negundo*, etc., Univ. Victoria Beach. Specimens were found during four successive autumns, 1927-1930, on a large log cut down about 1924 and lying in the edge of the woods.
- **aquarosa** Fr. On wood, Minaka, Univ., Victoria Beach. Pileus somewhat viscid, spores $7-8 \times 4 \mu$.
- **aquarosoides** Peck. On stumps and logs of *Populus*, etc., Univ. eastward and around Lake Winnipeg. More common in Man. than *P. aquarosa*, plants more caespitose and scaly than in that species, spores $4-6 \times 3-4 \mu$.
- **temnophylla** (Peck) Sacc. On the ground at the edge of woods, Victoria Beach. Dr. Overholts doubts that this species is distinct from *P. piceorum*. He found the spores to be $8-11 \times 6-8 \mu$ in the specimens sent him.
- Pluteolus coprophilus** Peck. Not common on manure piles and in dung cultures in the laboratory, Univ., Winnipeg. $12-14 \times 8-9 \mu$.
- **expansus** Peck. On debris and rich soil, Mettick to Univ. $10-13 \times 7-8 \mu$.
- **reticulatus** Fr. On old wood, Univ. Victoria Beach. Pileus 1.3 cm. wide, very viscid, purplish-gray, spores $10-12 \times 4-6 \mu$.
- Tubaria autotricha** (Herk. & Broome) W. G. Smith. On bare dark soil, Univ. Pileus 5-10 mm. wide, white, silky, gills white then brown, decurrent, intervenose; stem 10-20 \times 1 mm. white, nearly smooth, myceloid below, spores $7-8 \times 4 \mu$, unguiculate.
- **furfuracea** (Pers.) W. G. Smith. Common on wood, earth and moss, Univ. northward. $7-9 \times 4-6 \mu$.

Porphyrospora

- Hypopholoma appendiculatum** Fr. In woods, Univ., Victoria Beach. Pileus up to 8 cm. wide, brown drying to asbestine, spores $7-9 \times 4 \mu$, cystidia on sides and edges of gills.
- **Artemisiae** Pers. On sawcut in an ice-house; Univ. Pileus 2-8 cm. wide, dark chestnut brown and conspicuously covered with white silky fibrils when moist, ten and apparently glabrous when dry, gills white then purple, often with droops, broad, close, edge whitish, stem 5-10 cm. \times 2-6 mm., whitish pruinose at apex, striate; spores $8-10 \times 5-7 \mu$, sterile cells and a few cystidia on edges of gills. Dr. J. H. Lange considered that the fresh specimens were like the plants he calls *H. Artemisiae* in Denmark. It appears distinct in the ice-house; in the field it might pass as *H. incertum* or a related species.
- **Tetrasorum** C. S. Parker. In woods, Birds Hill, Univ. Pileus hygrophanous, ochraceous on drying, livid when moistened, stem slightly striate at apex, spores $7-9 \times 4-5 \mu$, cystidia on edges of gills, a few on sides.
- Tetrasorum** Fr. In broadleaf or mixed woods; Clear Lake, Univ. Plants solitary, spores $6-8 \times 4 \mu$, cystidia on edges of gills.
- **elongatipes** C. S. Parker (*H. longipes* Desmaz. and Bab., 71 113, not *H. longipes* Peck). In a cellar, Univ., possibly this species in the woods near Beaujour. This fungus was common in a "dug-out" in 1927 and 1928; it has not been seen with certainty since the filling-in of that cellar. Here, as in the ice-house mentioned above, somewhat abnormal conditions result in modifications of the plants, but this species did not seem to fit any known description.
- **fasciculare** (Huds.) Fr. Not uncommon on or near wood, Univ. to Victoria Beach and eastward. The gills soon become green.
- **hydrophilum** (Roll.) Fr. Caespitose in woods, along the Red River and eastward.

Myphalema incertum Peck. Common on lawns, or sometimes in woods, along the Red River to Victoria Beach.

- **irregularis** C. B. Parker. In woods, Victoria Beach. Spores angular, $c. 6 \times 4 \mu$. A species collected at Near Lake on a decayed stump has very irregular spores $9-11 (13) \times 6-8 \mu$, definitely purple, pileus brown, scaly about 2 cm. wide. This species was not found described in *Myphalema* or *Inocybe*.

Thachrymbundum Fr. In woods, Univ.

Polyptrichi Fr. In a sphagnum bog, Ingolf, J. P. Lange and G. R. Bush. Pileus small, yellowish, brownish at centre, stem very long, lanky, spores $9-11 \times 5-6 \mu$, brownish-purple. Perhaps better placed in *Psilocybe*.

sublateritium Fr. Common on wood, Univ. to Victoria Beach and eastward. The Manitoba collectors have sometimes been made in early June (1929, 1931, 1932, 1935) perhaps because cold weather prevented fruiting in autumn.

valentinum (Fr.) Quél. Common in woods, on lawns, sawdust, etc., Univ. to Victoria Beach and eastward. Spores $10-13 \times 6-8 \mu$, slightly rough.

- **vinosum** Kauff. In frondose woods, Univ. Pileus 15-20 mm. wide, nearly black when dry, stem with a wine-colored, uvee, bulbous at the base, spores $5-6 \times 2\frac{1}{2}-3 \mu$, smooth, purple. This seems to be Kauffman's species, described from Michigan, it has been found but once in Man.

Psalliota abruptibulba Peck. Sometimes abundant in frondose or mixed woods across Man. Pileus large, whitish, turning yellow when rubbed, stem with an abrupt bulb at base. One of the best edible mushrooms.

arvensis Fr. Not uncommon in fields, grassy woods, etc., Univ. to Victoria Beach.

compestris Fr. Commonly cultivated, sometimes on lawns, etc., in Man and Sask. The commercial production of mushrooms in and near Winnipeg probably averages about 100 lb. per day. Fungi parasite on the mushrooms have caused little damage. Many facts regarding *P. compestris* are given by Buller (82, vols. I and II).

- **diminutiva** Peck. On the ground in mixed woods, Victoria Beach. Pileus small, with reddish fibrils, annulus persistent, spores $5-6 \times 3 \mu$.
- **haemorrhodaria** Fr. Rare in woods, Berens River, Victoria Beach. Pileus scaly, the flesh and stem turn red when broken, spores $5-7 \times 3-4 \mu$.
- **placomyces** Peck. In or near woods, Univ., Winnipeg. Pileus nearly covered with chestnut-brown appressed scales, stem bulbous, annulus double, spores $5-7 \times 4 \mu$.

Redmani Peck. Occasional on lawns, Univ., Winnipeg. Pileus glabrous, white becoming cream-colored, stem short, solid, spores $c. 6 \times 5 \mu$.

- **subrufescens** Peck. In frondose woods, Univ. Pileus large, odor of almonds.

Pezizya parasimplex Rytz. On sticks and mossy wood, near Beauséjour and at the Univ. Pileus 1-2 cm. wide, campanulate, watery brown and strate, then umbelline and alutaceous, gills broad, subdistant, edge white, stem 1-5 cm. long, 1-2 mm. thick, whitish, spores $10-12 \times 6 \mu$, cystidia present.

- **foeniculata** Berk. & Broome. On dung, Univ. Pileus 8-10 mm. wide, coarsely silky, gray-brown, stem very slender, pale; spores mostly $14 \times 8 \mu$.
- **umbonata** Peck. On old wood, Univ., June-Sept. $14-16 \times 7-9 \mu$.

Psilocybe foeniculii Fr. Very common amongst grass in damp periods, Univ. north and eastward, usually about June, sometimes in September. Spores $12-16 \times 8-10 \mu$, slightly rough.

- **mandaria** Fr. On horse dung, Univ. Spores purplish, $11-18 \times 7-9 \mu$.
- **insuavis** Fr. In damp woods, Berda Hill, Univ. Spores $10-12 \times 6-8 \mu$, cystidia present.
- **subfistulata** Peck. On pastured ground, lawns, and moss, Univ. eastward. Pileus 1-1½ cm. wide, slightly viscid, dark brown then ochraceous, gills whitish at first, stem brownish, minutely fibrillose, sometimes with a suggestion of an annulus, spores $7-8 \times 4-5 \mu$.

uola (Fr.) Battarlie. In rich soil, Univ. Pileus 1-2 cm. wide, olivaceous with brownish centre, stems long and slender, spores $17-20 \times 9-11 \mu$.

Stropharia coronilla Bres. In frondose woods, Univ. Pileus 3-6 cm. wide, dark watery-brown then tan, sub-viscid, annulus strate above, sometimes evanescent, spores $7-9 \times 4-5 \mu$; sterile cells on edges of gills monole.

Sarcopharia epiphyseus (Perk.) Atk. As pointed out in "The Fungi of Manitoba," Kauffman's report of this fungus "as far west as Winnipeg" was an error. There has recently come to light a specimen collected perhaps thirty years ago, locality not known but probably in Man. This doubtful record is the only one. See Buller (82, vol. III).

poethyroides Lange. In a Sphagnum bog, Ingolf J. E. Lange and G. R. Nisby. One specimen found and recognized at once by Dr. Lange to be his species described from our locality in Denmark. The spore print is purple, the spores $8-10 \times 4-4\frac{1}{2} \mu$, cystidia bottle-shaped, $c. 30 \times 50 \mu$. This provides another example of the wide distribution of fungi and of the small knowledge of the range of many species.

aromiglobata Fr. Common on dung, sometimes on soil, Norway House to Univ., Man., Saskatoon, Sask. Described and illustrated by Buller (82, vol. II).

— *stercoraria* Fr. Common on dung. Univ. Very similar to or identical with *S. aromiglobata*. The spores are somewhat longer, reaching 21 or even 24μ in length. Cystidia have not been found on the sides of the gills.

Melanospora

Anellaria separata (L.) Karst. Common on horse dung, Norway House to Univ. Discussed and illustrated by Buller (82, vol. VI). $18-22 \times 10-12 \mu$.

Coprinus apothecus* Fr. (= *leptopus* Karst.). In a root-cellar at the Univ., growing at the bases of decaying supports of Populus 1929, 1934 and 1938. June to Sept., plentiful when it appeared, also found on or near old wood in East Hudson, Winnipeg. Det. W. F. Hanna, who finds mycelium of polysporous cultures to bear clamp connections, such pure cultures grown on sterile horse dung and soon produced good fruit bodies. See Figs. 1-5.

stramentarius Fr. Common in Man. and collected at Pike Lake, Sask. The tiny caps are lignivorous and occur around stumps, over buried roots, etc. See description and illustrations by Buller (84, 82, vol. III).

brevilanatus Buller (notus novum, 82, vol. III 308). Near *C. leptopus*, of which it might be considered a variety.

— *caeratus* Fr. Common on lawns, roadsides, etc., in Man. and at Saskatoon, Sask. Fully described and illustrated by Buller (82, vols. I and III) and by I. Mousseau (134).

cardioperus Gibbs. Not uncommon as a coprophagous species, along with *C. caeratus* and *C. apothecus* (Nov., Winnipeg). The spores are heart-shaped. The basidia are usually 4-spored, but a 2-spored form of this species was found in 1835 by W. F. Hanna on old cow dung (see Fig. 8). Jomard (Ann. Soc. Linn. Lyon, 77, 1933, p. 20 of reprint) records both the 2-spored and 4-spored forms of this species in France, and considers that *C. cardioperus* is a synonym of the earlier *C. Poteuillardii* Quél.

certinatus Lange. On old dung of horse or cow, Univ. The fungus came up in the laboratory on the dung gathered in the woods in Sept. by W. F. Hanna.

curtus Harkn. (= *placoides* Buller, 82, vol. I 69). Common on dung, particularly of horse. It sometimes fruits in the field, and usually found when fresh horse dung is placed in a damp chamber, appearing on about the tenth day as the first Agaric. The very young pileus is ivory-red, the expanded pileus bears minute reddish or whitish scales interspersed with clavate hairs, the small disc is finally depressed, the spores are deep black, cystidia are absent. See Buller (82, vols. I, II, IV), and Figs. 6 and 7.

— *domesticus* Fr. On old logs, especially of *Chamaecyparis*, Univ. to Victoria Beach and outward. The pores arise from a reddish-yellow *Onium* (= *auricomum* Link.) between the bark and the wood, and have been grown from this in the laboratory at the Univ. The species somewhat resembles *C. auricomus*, the spores are brownish. Figured and discussed briefly by Buller (82, vol. III). *Coprinus rubens* (Fr.) is perhaps the same species.

ephemerus Fr. Common on dung, especially in laboratory cultures, Univ., Winnipeg. The name "ephemerus" has been applied in the literature to several small *Coprinus*, it is here used for the form with brownish pale bearing numerous cylindrical or pointed hairs (glaucoidia), without cystidia on the gills, the pilei expand at night. See also Buller (82, vol. II), and Figs. 9 and 10.

* This synonymy of the species of *Coprinus* found in Manitoba is from the thorough and extensive work of A. M. R. Buller and W. F. Hanna.

- Coprinus flocculentus** Buller (*nom. nudum*, 82, vol. III 4-5) Aret. to. or a variety of, *C. lagopus*, from which it differs in having a yellowish-white down composed of thin branched cells, and more slender cystidia.
- **Thomarembius** Fr. Amongst leaves and grass in deciduous woods, L. niv. Buller (82, vol. IV) considers *C. flocculentus* to be a synonym of *C. pilosulus*.
 - **Mannelli** Lange or *C. variatus* Fr. On old dung probably of horse, Univ., Sept. One or possibly both of these species developed in the laboratory from the dung collected in the woods by W. F. Hanna. The two species as described by Lange are much alike.
 - **Hendersonii** Berk. Rare on old cultures of horse dung, L. niv. Stem with a distinct annulus at or below the middle, pileus 7-10 mm. wide, with a brown tinge at first, and a waxy meal stem up to 3 mm. long, spores rounded pyriform, $8-10 \times 7-8 \mu$, cystidia present.
 - **lagopus** Fr. (probably including *C. sinensis* Fr. as commonly recorded in the literature). Common on horse dung in Man. The pilei bear whitish hairs, tips of waxes. Hanna (126, 129) has studied this species, and has shown by matings that it is identical in Canada and England. (Described and illustrated by Buller (89, 92, vols. II, III, IV, V) and studied also by Dorothy Newton (126), Irene Mounce (122, 133) and H. J. Broder (79, 80). See Figs. 11 and 12.
 - **laniger** Peck. On old charred wood, L. niv. Dr. Hanna found the specimens and spores to agree with a collection determined by Kauffman as *C. laniger*.
 - **laevis** Buller (71, 118). On horse dung in laboratory cultures after several weeks, L. niv. Illustrated and discussed briefly by Buller (82, vol. IV). It resembles *C. adustus*, but grows on dung instead of grassy places, has a slightly smaller depressed disc, has gills which deliquesce at their edges instead of remaining entire, and usually has a longer stem. See Figs. 13 and 14.
 - **macrothicus** Peck & Bres. Common on heating stable manure in Man. and elsewhere in North America and in Lange; very rarely obtained in laboratory cultures. Pseudostroma of variable length, or sometimes absent. Gills wider than those of *C. lagopus* and, as can be seen in the field, held together by cystidia during autodigestion. Illustrated and described by Buller (82, vols. II, III, IV, VI).
 - **micaceous** Fr. Common as a lignicolous species around stumps, roots, etc. in Man. It is never coprophilous. The basidia are tetramorphous; the meal-cells on the pileus are rounded and not ornamented with crystals of calcium oxalate. Described and illustrated by Buller (82, vol. III).
 - **minor** Karst. seen J. E. Lange. On very old horse dung in laboratory, L. niv., coll. W. F. Hanna. Dr. Hanna finds that the secondary mycelium bears clamp connections. Lowerland (Ann. Soc. linné. Fyon, 77, 1933, p. 21 of reprint) considers *C. minor* to be identical with *C. subtilis* Fr. See Fig. 15 of spores.
 - **nanotus** Fr. Rare on old wet horse dung in the laboratory, L. niv. Appeared in 1912 and 1922 only. Distinguished by its strong, unpleasant odor, and by the apparently unique feature of possessing basidia normally trisporangiate and trochospore, as described and illustrated by Buller (82, vols. II, III).
 - **nivus** Fr. On horse dung, L. niv. Pileus snow white, covered with pulverulent meal. See Buller (82, vols. II, III, IV), and Miss Mounce (122, 133).
 - **ovatus** Richard. Occasionally seen at W. Hanna, but this "species," as illustrated by Cooke, Pl. 659, is undoubtedly only a starved or depauperate form of *C. romazei*.
 - **parviporus** Buller (71, 118). Frequent in troops on raw dung kept moist for about five weeks in the laboratory, W. Hanna. Spores small, mostly $5 \times 3 \mu$, the only species in which the long basidia are sometimes surrounded by only two paraphyses. The pileus expands merely and sheds its spores only during the night. It is smaller than *C. atrocarus*, has white instead of gray meal on the pileus, and the meal-cells are smaller and ornamented with more numerous crystals of calcium oxalate. See Figs. 16-18.
 - **phoenosporus** Karst., seen J. E. Lange (*C. Romanae* Peck). From base of stems of Marquis wheat, L. niv., W. F. Hanna. Dr. Hanna finds the fungus to be harmful, and that the secondary mycelium bears clamp connections. See Figs. 19-25.
 - **pilosulus** Fr. Common amongst grass in woods in Man. The gills do not deliquesce, but Buller (89) points out that it is a *Coprinus* rather than a *Psathyrella* because the spores ripen and are discharged from below upwards, and the basidia are dimorphic. The pileus

does not become verrucose but remains broadly convex. Described and illustrated by Buller (82, vol. I, II, III) and especially IV; see also Figs. 26-27 in this publication.

Capitatus *Tquadridentus* Peck. In old wood and debris. Wausaping, Victoria Parish.

epithema (Linn. f.) Buller common in old wood etc. in Mass. Perhaps the same as *t. domesticum*. *Vandendendri* (Lévl.) Sacc. 79 1934 states that *t. reboisii* is identical, and that the secondary mycelium forms clamp connections. *Franseria* (Det. Atkand, 1934, 1935) however did not find clamp connections in the cultures he identified as *t. reboisii*. Dr. Hanna finds both anamorphic and polyporous cultures of a *t. sp.* (spores based on *Madrospora*, which agrees with the description of *t. reboisii* and perhaps also that of *t. domesticum*) to be without clamp connections. See Fig. 26 of *Franseria*.

Montropithecus Haines. *Pedestal* resembles a cuplike or bowl-like mass of old weathered wood of size ranging in diameter from 1 cm. to more. Fruit-bodies were produced in the laboratory, and the fungus is described and illustrated by Dorothy Newton (125). Apparently not otherwise known in North America.

acromidum Peck. In horse manure. Linn. Apparently this species studied by W. F. Hanna, who contributes the following data and Figs. 29-34. Pileus at first cylindrical white, densely covered with white tomentum consisting mainly of hyaline spherical cells 2-120 μ in diameter, together with a few elongated cells about 30-50 μ ; as the tomentum opens the pileus becomes grayish on the sides and slightly lustrous towards the apex and in expansion readily ruptured and flaccid. Stalks two scale substrate and split at the margin up to 30 mm. in diameter. Cells black, numerous when young on edge, somewhat crystalline glabrous 20-20 μ in diameter, somewhat having an appendage about 10-15 μ , abundant on the edges of the gills; (at first a coated appearance but absent from the sides of the gills. *Franseria* is quoted. Width up to 100 mm. in length and 2 mm. in diameter, white, hollow, slightly attenuated apically, coated with cream scales like those on the pileus. Spores black in mass, elliptical with an apical germ pore, mostly $13\frac{1}{2} \times 8 \mu$.

Franseria appears singly or in groups on well rotted horse manure. This species was observed in-pastures at the University, Wausaping, in the autumn of 1934 to 1935. The spores germinate readily in horse-dung agar and polyporous cultures usually produce numerous fruit-bodies after about 30 days growth on sterile horse-dung. This species is heterothallic and probably basium as its monomorphic mycelia, when paired together, fell into two sexual groups. Clamp connections are present on the dilated mycelium. *Franseria* may be distinguished from *t. reboisii*, which it resembles when the fruit-bodies are young, by the pilate gills and the absence of crystals from the sides of the gills.

stellatus Buller 71 19. *Campocarpus* in horse dung in laboratory cultures. Linn. 1911 to 1928. Similar to *t. epimeris*, but pileus at first white-lustrous rather than yellowish-brown, the pileus splits irregularly and rather regularly at the margin as it expands, and disjoints so that finally only the disc remains with drops of liquid attached. Dr. Hanna finds that the spores are darker and larger than in *t. epimeris*, and that crystals are present only on the edges of the gills in *t. epimeris* whereas they are present on both sides and edges of the gills of *C. stellatus*. See Figs. 35-38.

strobiliformis Peck. In dung of deer or horse gathered fresh and kept wet in laboratory cultures. Linn. Pileus expanded dark lobulate, developing on the surface of the dung, and each of these lobes may produce one to several grayish white fruit-bodies covered with fungous web-like ornamentation with crystals of calcium malate. Described and illustrated by Buller (82, vol. I, II, III); see also Miss Mounie (122, 123).

strobiliformis Peck. Not uncommon on horse dung in laboratory cultures. Linn. White mycelium develops on the dung, and after four to six weeks the large fruit-bodies appear. The upper part of the stem turns black as the pileus expands. See Buller (82 and 83, vol. I, II, III) and V, Hanna (127) and Miss Mounie (122, 123). See Fig. 20.

Capitatus sp. In mud and *Madrospora* Linn. Dr. Hanna provides the growth of a species still unnamed.

Pileus at first rotundoid-ovoid, convex colored on the sides, slightly lustrous towards the apex, up to 27 mm. in height and 15 mm. in width, covered with fungus detachable down consisting of *Madrospora* filaments 20-50 μ in diameter. At the apex the down is aggregated into tufts on expansion the pileus becomes convex and irregularly split at the margin. Cells black, rounded, crystals on the gill-edges elliptical, about $70 \times 40 \mu$, those on the sides of

the gills cylindrical, 120-150 μ \times 40-60 μ , almost bridging the interlamellar spaces, basidia 4-spored. Stem up to 85 mm. in length and 5 mm. in diameter, white, hollow, smooth, slightly attenuated upwards. Spores black in mass, broadly elliptical, with prominent hilum and conspicuous apical germ pore, mostly 18 \times 7 μ .

A single fruit-body of this species came up in the greenhouse at the Dominion Rust Research Laboratory in a pot containing a mixture of soil and horse manure. The spores germinated well on horse-dung agar. When transferred to sterile horse dung, pure cultures covered it with a dense growth of white mycelium, but after two months had not produced fruit-bodies. When this pure-culture spawn was placed in a flower pot and covered with a thin layer of soil, fruit-bodies appeared in about two weeks. The fruit-bodies arise singly at a little distance from one another. Polysporous mycelium does not have clamp connexions.

This fungus may be distinguished from species such as *C. logopus*, *C. macrokarus*, and *C. apthana*, which also have floccose piles, by its cream-colored pileus, and by the fact that the down on the surface of the pileus does not become separated into patches as the fruit-body expands. It has not been collected out of doors but, judging by its behavior in culture, its natural habitat is probably rich soil rather than manure piles. See Figs. 40-44.

Compilidius gracilis Berk. In mixed woods, Kenora, Victoria Beach. Plants rather slender, pileus more or less umbonate, vinaceous in color, spores 18-21 \times 6 μ , cylindrical cystidia present. Probably a form of *G. varioides* Fr.

— *maculatus* Fr. Occasional in coniferous woods, Minnisk. Victoria Beach. Pileus and stem reddish, spores up to 24 μ long.

— *fuliginosa* Peck. In coniferous woods, Kenora. The pileus becomes more or less black when dried at room temperature.

vinicolor Peck, apparently. In coniferous woods, Kenora. Pileus small, reddish-brown, stem concolor, not yellow at base, spores 18-22 \times 6 μ , cystidia 95-120 \times 15-18 μ .

Panaeolus ?compensatus Fr. On dung and in woods, Univ. It has not been possible to work out some of the Manitoban species of *Panaeolus* with accuracy. The smaller forms referred to here, with spores 15-17 \times 7-9 μ , may belong to *P. populisaeus*. See Buller (82, vol. II).

— *retinugis* Fr. Common on dung, in pastured woods, etc., Univ. eastward. 14-17 \times 9-11 μ .

— *solidipes* Berk. Not uncommon on manure piles or on dung cultures in the laboratory, Univ. The pileus seldom exceeds 5 cm. in width, stem long, solid, spores 16-20 \times 10-12 μ .

Pezizyella disseminata (Pers.) Fr. Rare in woods, Univ. The usual abundant colonies of this small species were found on May 27 and June 21, 1921, it has not been seen since. It is common in many regions elsewhere. See Buller (82, vol. III).

PHALLALES

Dictyophora Rarivellii (Berk. & Curt.) Burt (*Ichthyophallus Rarivellii* (B. & C.) E. Fisch.)

Common on old sawdust and the waste from saw-mills, Cypress River, Kenora, Minnisk.

Mutinus caninus (Blada.) Fr. (perhaps should be referred to *M. Rarivellii* (Berk. & Curt.) E. Fischer.) In soil in a garden, Elkhorn, Man., also collected at Regina and Saskatoon, Sask. Not common.

HYMENOGASTRALES

Hymenogaster mutabilis (Boeckner) Zeller & Dodge. In a potato field beside deciduous woods, Univ. Dodge and Zeller who determined this, record it (Ann. Museum Bot. Gard. 21: 657) from only two other localities, Munich, Germany and Syracuse, New York. The odor was very strong when the fungus was collected.

Rhizoglyphus rubescens T. L. Under *Pinus Banksiana* in sandy woods, near Beausejour, at Kenora and Victoria Beach, det. S. M. Zeller. The fungus emerges partially from the soil, it is commonly about the color, shape, and firmness of a small yellow potato tuber, but bears reddish areas on the surface. Spores uniform, 9-13 \times 4 μ .

Scoletium agaricoides (Curt.) Hollos. Not uncommon along roadsides, or on piles of grass and, Gimli, Morden, Univ., Man., Battleford and Pike Lake, Sask. Illustrated and described by Buller (82, vol. II).

LYCOPERDALES

Astraeus hygrometricus (Pers.) Morgan (*Gaster hygrometricus* Pers.) Abundant on sand under *Pinus Banksiana*, etc., Kenora, Victoria Beach and elsewhere.

- Bovista pila** Berk. & Curt. In fields and woods; Kenora, Univ., Victoria Beach. Spores spherical, c. 4μ .
- **plumbea** Pers. In pastures or grassy woods, Berens River to Univ. and eastward. Spores oval, with long pedicels.
- Calvatia caelebs** (Bull.) Morg. In woods, Clear Lake, Gimh, Univ. The sterile base sometimes becomes very large, that of Clear Lake specimens reached a foot in length, and 3-4 inches in thickness.
- Termitiformis** (Schw.) Fr. Sent in from St. Boniface. Only the sterile base was present, it may be *C. caelebs*.
- cyathiformis** (Rose) Morgan. In gravelly grassland, Brandon, it is probably this species that is common on the prairies of Sask. It may form large "fairy-rings." The interior of the plant is purple.
- maxima** (Schaff.) Morgan (*C. gigantea* (Pers.) Lloyd). Occasional in grassland or gardens; Gimh, Univ., Winnipeg. Specimens sometimes reach $1\frac{1}{2}$ feet in diameter; one specimen weighed 16 lb. when collected.
- **saecata** (Vahl.) Morg. In woods and grassland, Gimh, Man., det. W. C. Coker, also found in Sask.
- Disciodes subterranea** (Peck) Coker & Couch. On sandy soil near Melita, C. W. Lowe. Plants with a sandy pad attached to the lower half, spores $5-7\mu$, spherical, with a pedicel about 2μ long, capillitium $3-4\mu$ wide.
- Gaeaster coronatus** (Schaff.) Schroet. A small species found under *Abies balsamea*, etc., Clear Lake, Kenora, Victoria Beach.
- **fimbriatus** Fr. In frondose woods, Univ.
- **foveiformis** Vitt. (*G. doliostus* Morgan). Saskatoon, Sask. and Kenora, W. Ont.
- **foveolatus** (Huds.) Fr. A specimen was found on a boulevard in Winnipeg. Spores c. $4-5\mu$, rough; capillitium $3\frac{1}{2}-7\frac{1}{2}\mu$ wide, walls roughened.
- **pectinatus** Pers. Fairly common under *Abies balsamea*, etc., Victoria Beach.
- **rufescens** Pers. In frondose and mixed woods, Clear Lake and Univ., Man., Pike Lake, Sask.
- **saecatus** Fr. In frondose woods; Univ.
- **triplex** Jungh. Fairly common in woods, Univ. eastward.
- Lycoperdon atropurpureum** Vitt. Amongst moss in bogs and woods, Clear Lake and West Hawk Lake.
- **Curtisii** Berk. (or *L. Wrightii* Berk. & Curt.). In pastures, Gimh, forming "fairy-rings."
- **echinatum** Pers. In mixed woods, near Benuejour and at Ingoef.
- **gemmatum** Batsch. Common across Manitoba on leaf mold or decayed wood.
- **marginatum** Vitt. In sandy mixed woods, east of Benuejour and at Victoria Beach.
- **Muscorum** Morgan (*L. Pringlei* Lloyd). Not uncommon amongst moss, eastern Man.
- **polymorphum** Vitt. (*L. repens* Bull.). The common species on "fairy-rings" in lawns, pastures, golf courses, etc., Norway House to Univ.
- **pyriforme** Pers. Common on old deciduous wood, stumps, etc., in Man.
- Mycenastrum corium** (Querc.) Drew. Occasional amongst grass, etc., Univ., Man., Saskatoon, Sask. Specimens sent in from Berens River were aberrant, or possibly a variety, according to Dr. Coker.
- Tylostoma albicans** White. Amongst grass, Univ., det. C. G. Lloyd.
- **campestre** Morgan. Common on sandy soil in southwestern Manitoba, at Saskatoon and Sutherland, Sask.
- **rufum** Lloyd. Amongst grass, Univ., det. C. G. Lloyd.

NIDULARIALES

- Crucibulum vulgare** Tul. On old wood, Kenora.
- Crathrus stercoreus** (Schw.) de Toni. Not uncommon on old cow dung; Univ.; Sept.-Nov.
- striatus** (Huds.) Pers. Common on old wood, Univ. eastward in Man., at Saskatoon, Sask., apparently from old wheat straw.
- varicosus** (Bull.) DC. Common on soil in grain fields and elsewhere in Man. and Sask. Some specimens, especially from Saskatchewan, are more hispid than the descriptions record.
- Nidularia pulvinata** (Schw.) Fr. (*N. parvula* Tul.). On old wood; Kenora.

SCLERODERMATALES

Sphaerobolus stellatus Tode. On wood or on dung of cow, rabbit, etc. Assom River to Urey and northwest. Described and illustrated by Butler (22, vols. V and VI).

FUNGI IMPERFECTI

MONILIALES (HYPHOMYCETES)

Acronictella atra Race. Isolated from *Hardrum vulgare* from Morden by B. Peterson. Described by I. W. Snyman, who has made a careful study of this fungus (10). Other species resembling *Acronictella* were found in soil.

Arctingulopsis albica Pevs. var. *varians* Jensen. Isolated three times from a wooded soil near Winnipeg.

- *atromaculatus* Corda. Occasionally found in surface soil, and rather common as a secondary organism on rotted potato tubers, old bean pods, etc. in Man. on old stems of Dublin and roots of *Trifolium dactyloides* Saskatoon Bush. This fungus is highly resistant to culture. Spores $2.5-101 \times 1\frac{1}{2}-2\mu$. Reported to be a stage of *N. tritici* sensu.

Artinomyces arvensis Thaxter (Capers). Roots of tubers of *Solanum tuberosum* in contact with soil of the soil of Man. and Sask. where the majority of them have an alkaline reaction, and the root-organisms in a layer of about 4 lines wide. Potato aphid has been collected at N. and S. House, Man. at M. N. near the northern limit of potato production.

Athanasia ?Amaranthi Peck (Hark). On leaves of *Amaranthus retrofractus* Labrador.

- *brunnea* Peck. New species. Hark. On leaves of *Monarda* *Rosa* in Man. causing some injury to the variety Extra Early Purple Tip. In 1904 to *Monarda* *var. brunnia* near Winnipeg in fields which had grown cauliflower for several years, common on cabbage. Perhaps a *Monarda* variety, not *brunnia* as it is reported to be *brunnia* *var. brunnia* and *Thlaspi arvense*, Urey. Spores large, $45-105 \times 14-20\mu$.

1. Cited Pierce. On fruits of orange imported into Winnipeg.

Dianthi Marces & Hall. On *Dianthus barbatus* Lark. Spores mostly $40-50 \times 1.5-17\mu$.

- *flavescens* (Corda) Peck. Leaves and fruit. The dead areas on leaves of *Abies balsamea* Indian Head Bush. Although the spores are so described, the nature is uncertain.

Sclerotium H. & Martin. Jensen and Thaxter. Common but without injury on leaves of *Solanum tuberosum* in Man. and at Indian Head, Prince Albert and Saskatoon Bush. The name of a similar species occurs rarely on other *Polyporus* including *Polyporus crinitus* *Sclerotium* *melanogaster*, *Sclerotium* *sp.* and *Physalis* *incandescens* in Man. *Amaranthus retrofractus* in potato fields also is affected by an *Athanasia*, perhaps a *Sclerotium* rather than a *Monarda*.

- *terrestris* Nann. group. Not uncommon in soil. Spores about $20-35 \times 10-12\mu$. Several other species of *Athanasia* found as saprophytes in soil and on dead parts of plants were not determined.

Arthrobotrys asperula Corda. On bread-making cultures from Victoria Beach. The typical species with as to eight or more whorls of 2-celled spores $24-28 \times 12-15\mu$.

- *asperula* var. *oligospora* (Fries) C. C. Jensen. This variety, which may be only a less vigorous form of the preceding, is common in dung cultures, Urey. This fungus was observed by A. H. K. Butler in fern mycelial bags which were and kill have sometimes as pointed out by Espf (Die Pilze, 1900, p. 17).

Aspergillus flavipes Peck & Hart (Thaxter and Thaxter). This species is common in or near the surface of the soil of wheat fields or grassland. It has also been isolated from bacteria and from grasshoppers. Dr. Marchand has obtained it from the roots of *Trifolium dactyloides*. A striking fungus in culture with a "forest" of long rounded heads. Some strains at least develop vigorously at 37°C.

Ernia Link group. Occasional in soil and butter. One host for this species is the production of lactic acid in culture.

Penicillium Fries. Rather common in or near the surface of soil, especially on fruit decayed plant parts the spores may reach higher. All cultures were found to grow readily at 30°C. This fungus may kill chlorella. The death of nearly 600 young chicks near Winnipeg in a brooder house littered with the remains of corn cobs is reported by Savage and Jan (127). A *Penicillium* was readily isolated from the lungs of the chicks and from the excreta.



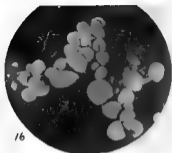
FIGS. 1-7. FIGS. 1-5. *Coprinus apothecia* Fr. $\frac{1}{2}$ natural size. Stages of development are shown. FIGS. 1, 3 and 5 from solid fruit-bodies. FIGS. 2 and 4 from pure cultures. (Photographs by W. F. Hanna). FIGS. 6 and 7. *Coprinus aerius* Kuhnke. $\frac{1}{2}$ natural size. Fruit-bodies grown in pure culture by W. F. Hanna.



FIGS. 8-11. FIG. 8, *Coprinus corollae* Gable, natural size. *Baeocystis fruticulosus* grown in pure culture by W. F. Hanna. FIGS. 9 and 10, *Coprinus ephemerus* Fr., natural size. From pure cultures grown by W. F. Hanna. FIG. 11, *Coprinus lagopus* Fr., from pure culture, natural size, grown and photographed by W. F. Hanna.



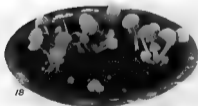
FIGS. 12, 13. 1 - 12. *Capitatus longipes* Fr. from pure culture. $\times 25$ grown and photographed by H. F. Hanna.
 FIGS. 13 and 14. *Capitatus longipes* Fr. from pure culture about natural size. Photographed by H. F. Hanna.
 FIG. 15. *Capitatus longipes* Fr. from pure culture. $\times 600$. Photograph by H. F. Hanna.



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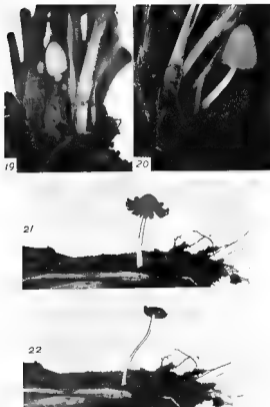


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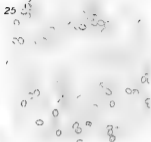


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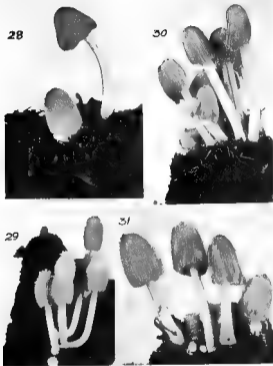
FIGS. 16-18. *Capronia portuportus* Butler from pure cultures by W. F. Hanna. FIGS. 16 and 17 $\times 2$; FIG. 18 $\times 1$.



FIGS. 19-22. *Equisetum phaeosporum* Kunt. showing development on a plant of *Marquisia virens*. FIG. 19 $\times 12$; FIG. 20 $\times 12\frac{1}{2}$; FIGS. 21 and 22 natural size. Photographs by W. F. Hansen.



FIGS. 23-27. Figs. 23-25. *Coprinus phaeosporus* Karst. FIG. 23, from a pure culture of mycelium $\times 8$. FIG. 24 dry spores $\times 880$. FIG. 25, spores in water $\times 400$. FIGS. 26 and 27, *Coprinus phaeosporus* Fr. Wild fruit-bodies, natural size. Photographs by W. F. Hanna.



FIGS 28-31. 28. *Agaricus radiatus* Dean; Fr. with fruit-body natural size. FIGS. 29-31, wild fruit-bodies of *Coprinus comatus* Peck, showing both and developed (see also FIGS. 32-34). Natural size. Photographs by W. F. Hanna.

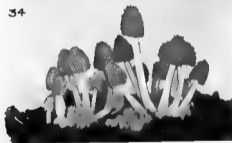
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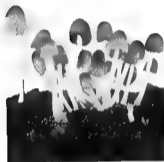


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FIGS. 32-34. *Coprinus semianatus* Peck showing habit and development (see also Figs. 29-31). Natural size. FIG. 34 from a pure culture others wild fruit bodies. Photographs by W. P. HANNA.

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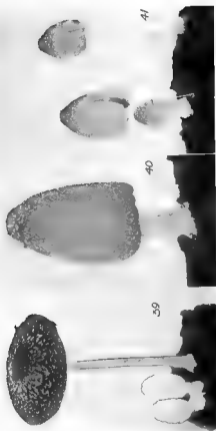
37



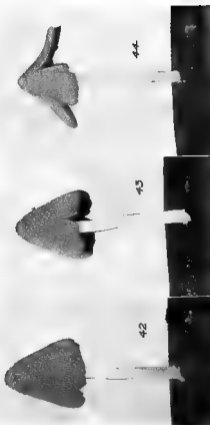
38



Figs. 35-38. *Agaricus subfusus* Bailey, various size developed in jars, culture by V. P. Il'inski.



FIGS. 39-41. *Lophotolus alveolatus* Fr. var. *alveolatus* Fr. (L. *alveolatus* Fr. var. *alveolatus* Fr.) (L. *alveolatus* Fr. var. *alveolatus* Fr.) as described in text. From pure culture grown and photographed by H. F. Hesse. FIG. 40 $\times 2$ FIG. 41 natural size.



FIGS 42-44. *Coprinus* sp., as described in text. From pure culture grown and photographed by H. F. Ivimey. Natural size.

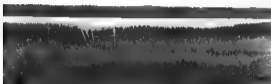


FIG. 13. Aerial view of the river flowing through the forest near the town of Wainwright, Alberta. The river is a typical example of a river in the region. Photograph by No. 12 Squadron, R.C.A.F., Wainwright.



FIG. 14. Aerial view of a prairie region near the town of Wainwright, Alberta. The terrain is somewhat rolling, the native prairie vegetation here and there with clumps of shrubs or tall trees. Photograph by No. 12 Squadron, R.C.A.F., Wainwright.

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FIGS. 47-49. FIG. 47. Look ng across a large plough near Assiniboia, Sask. *Scirpus validus* along the shore, mixed woods in the background.

FIG. 48. Sharply rolling Park country near Dana, Sask. A small lake is in the center background.

FIG. 49. A wheat field near St. Gregor, Sask. The land was cleared of a growth of trees and shrubs like that in the background. In such areas *Ophiobolus pratensis* thrives.

Aspergillus glaucus Link. group. Common as a mold on slightly damp plant parts, as in herbarium driers, in Man. and Sask. Also obtained from cereal roots by Dr. Machosch. See *Eurotium herbariarum*.

imnotus (Hansen) Thom & Church. Isolated from the roots of cereals by J. E. Machosch.

- *nidulans* (Lidum) Wint. Rarely found in soil and butter. Aeci are produced.
niger van Tiegh. Occasionally appears on cultures in the laboratory or in decaying fruit. This fungus is common in more southern soils, is rare in the soils of Manitoba (76, 78). It is used to test the phosphorus content of soils.

Okaasaki Okaasaki. Isolated twice from soil in Man., and from kernels of wheat in Sask.

- *repens* (Corda) Sacc. Isolated from damp tobacco; probably common in Manitoba.
 - *Sydowii* Pass. & Bart. (Thom & Church). One isolation from soil, and one from flour in Man.
 - *terreus* Thom. Two isolations from butter. It was not obtained in soil isolations, although probably present.

uetus Pass. (Thom & Church). Six isolations from soil, one from butter.

- *versicolor* (Vuill.) Tirab. Isolated once from the soil.

Bactridium flavum Kunze. On decayed wood, Univ., Victoria Beach. The spores are large, 135-200 \times 40-65 μ , golden yellow, usually with four septa, two near the apex and two near the base, leaving a large barrel-shaped cell at the centre. The illustration in Rabenhorst's *Kryptogamenflora* does not properly show the septation. Mr. Mason finds that Manitoban specimens agree with those collected in England. *B. Rhinis* Berk., according to the late A. P. Morgan, is perhaps the same.

Bauveria Bassiana (Bals. Vuill.) On *Aphidius fumarius* and other insects, Univ. Spores spherical, 2-2 μ . Probably common; three collections identified by M. Timonin. No particular search has been made in Man. for entomogenous fungi.

dennis (Link) Vuill. One collection on a spider at Kenora. Mr. Timonin succeeded in obtaining cultures a year after the fungus was collected.

Botryotrichum atrogriseum van Beyma. Two isolations from soil. Spores 11-25 μ in diameter. A similar or identical fungus was found on an old wasp's nest, spores 12-18 μ , surrounded by sterile hair-like hyphae.

- *piluliferum* Sacc. & March. Two isolations from a garden soil. The spores are somewhat smaller (9-14 μ) than in the preceding species and the colonies in culture are paler.

Botrytis Allii Munn. Sometimes injurious to onions (*Allium cepa*) in storage. The fungus produces sclerotia and *Botrytis* fructifications, but the name has not been verified.

- *clavosa* Pers. Occasionally isolated from soil and butter, probably not a "true soil fungus," but ubiquitous on dying or dead plant parts. Forms of this species have been found weakly parasitic on *Aspergillus effundus*, *Pteroponium zonate*, *Lecanaria salina*, *Peziza officinalis*, *Lilium* sp. on fruits of *Fragaria* sp., *Corylus americana*, and *Rubus idaeus* var. *arabicanus* in Man.

Botryella Sacc. & Wint. On bark of *Populus*, Univ. The fungus agrees fairly well with a specimen so determined by J. B. Ellis. Spores about 8 μ in diameter. The species of *Botrytis* on old wood, etc., are difficult to determine.

elliptica (Berk.) Cooke. Injurious to *Lilium* sp. cult, Dropmore. 12-15 \times 10-17 μ .

- *goniulata* Corda, probably the conical stage of *Hyponoxylon* sp. On old wood, Univ. 7-10 \times 3-4 μ .

- *Passoviae* Oudem. Often injurious on *Passes affinis* in Man. and at Saskatoon and Wolsley, Sask.

- *phymatetricha* Sacc. or near. On an old board, Univ. Spores pale yellow, 5-7 \times 4-5 μ .

- *pilulifera* Sacc. Recorded with considerable doubt on dung culture; Univ.

- *terrestris* Jensen. Three isolations from soil. 3-4 \times 2 $\frac{1}{2}$ -3 μ .

- *Tulipes* (Lib.) J. Lind. Developed on *Tulipa Gussoneana* shipped to Winnipeg from Toronto, not yet found on tulips grown in Manitoba.

- *vulgaris* Fr. (probably only a form of *B. cinerea*) Injuring the tips of *Helianthus annuus*, Univ.

Cephalosporium acremonium Corda. Rather common in soil, isolated also from butter. Produces a pink to salmon-colored, rather slimy growth in culture, with spores 3-6 \times 1-2 μ . A fungus apparently this species was found on old *Myxomycetes*, Univ.

- Cephalosporium curtipes** Sacc. or near. In soil in Man., in wheat roots at Indian Head, Sask. $4-9 \times 3-4 \mu$.
- lumicola** Oudem. Occasional in soil. Cultures somewhat purer than those of *C. acremorum*; spores roundish, $3-4 \times 2-3 \mu$.
- Ceroasporia Lappulea** Dearness & Buby (71, 123). On *Lappula echinata*, type collected at Birds Hill, found also at Univ. Spores $30-60 \times 4 \mu$.
- Ceroaspora althaeina** Sacc. Common in summer and autumn on *Althaea rosea*, Univ. $40-90 \times 4-6 \mu$.
- **antipus** Ell. & Holw. On *Lonicera glaucoerens* and *L. sulfurea*, Norway House, Berens River and Birds Hill. $25-40 \times 3\frac{1}{2}-4\frac{1}{2} \mu$.
- **Apul** Fries. Reported on *Asium graveolens* from Morden (Can. Plant Disease Survey Report for 1934) but specimens have not been seen by the writers.
- **arborescens** Tharp. On *Paeonia officinalis* Univ., Brandon. Spores $40-60 \times 4-6 \mu$, conidiophores short. *C. ampeligena* has wider spores and longer conidiophores (C. Chupp in litt.). Tharp wrote the name "arborescens" but since it is derived from *arbor* (*ampelopsis arborescens*), it should be "arborescens" (J. L. Connors).
- **avicularis** Wint. Common on *Polygonum aviculare* and *P. erivum*, Univ. and across southern Manitoba. $40-100 \times 4-6 \mu$.
- **beticola** Sacc. Occasional on garden beet. *Beta vulgaris*, but not found to be injurious, Univ., Roston, Sifton. $60-90 \times 4-6 \mu$.
- **Bizzozzeriana** Berk. & Berl. On *Lepidium Draba* a weed which has recently become naturalized in Manitoba, Brandon and Kamsel. Dr. Solheim thinks it is this species, or perhaps the var. *Drubae* B. Com. Spores $55-74 \times 4-5 \mu$, 2- to 4-septate.
- **Callus** Peck & G. W. Clinton. One collection on *Calla palustris*, Kenora. $55-66 \times 8-10 \mu$.
- **Caricis** Dearness & House (*Ceroaspora caricis* (Dearness & House) Sacc. On *Carex* sp., Univ. (*Ceroaspora caricis* Oudem. was described earlier, Dr. Chupp is uncertain whether the latter is distinct from *C. caricis* Dearness & House).
- **clavata** (Grev.) Peck. On *Andropogon scoparius*, Univ. $38-75 \times 4-6 \mu$. See *Phyllotrichia clavata*.
- **Comandrea** Ell. & Dearness. On *Comandra pallida*, Grand Beach. $45-56 \times 2-2\frac{1}{2} \mu$.
- **Daviesii** Ell. & Ev. Occasional on *Malvastrum alba*, Brandon Valley River. $24-100 \times 3-6 \mu$.
- **debilis** (Rees) Wint. Rather common on *Chenopodium album*, Univ. Ell., on *Atriplex* sp., Saskatoon, Sask. $40-70 \times 5-7 \mu$.
- **Halimula** Chupp & Buby, n. sp. Spots at first more or less circular and translucent, becoming brown and extending along the edge of the leaf, without definite margin, the very numerous minute black pustules are visible under a hand lens, amphigenous, the stromata consist mostly of only a few dark brown cells, fascicles usually not dense, consisting often of only 1-3 conidiophores, conidiophores pale olivaceous-brown to med. am-brown, the longer ones being the darker, mostly short, non-septate, not geniculate, unbranched without spores, somewhat attenuate toward the apex, $5-25 \times 3-5 \mu$, occasionally up to 75μ long; conidia hyaline, obclavate, or sometimes cylindrical when short, straight or slightly curved, base sharply conical to distinctly truncate, apex usually blunt, septa inconspicuous, $30-60 \times 2-3\frac{1}{2} \mu$.
- On leaves of *Halimolobos deflexa*, Berens River, Manitoba. August 1, 1935, G. R. Buby 4921.
- Ceroaspora gentianicola* Ell. & Ev. has colored conidia, *C. Gentianae* Peck has colored, very narrow conidia, *C. Sabuleae* Ell. & Ev. and *C. Prunae* Ell. & Ev. have conidiophores paler than those of *C. Halimula*.
- **Huehneria** Ell. & Martin. On *Huehneria Richardsonii*, Brandon. Mature spores $65-80 \times 3-4 \mu$.
- **Lathyrus** Dearness & House. On *Lathyrus venosus*, Minaki. $30-51 \times 4 \mu$.
- **Malvarum** Sacc. On *Malva rotundifolia*, Birds Hill. $60-100 \times 4-5 \mu$.
- **manitobana** J. J. Davis (Trans. Brit. Myc. Soc. 8: 98, 1922). Type collected at Gilbert Plains, Man. on *Elaeagnus argentea*, collected subsequently at Killarney and Souris, Man., and at Indian Head and Duff, Sask. Spores $45-80 \mu$ long, mostly $5-7 \mu$ wide. Resembles *C. Friesii* (Lév.) Sacc. in having long conidiophores in corymbium-like fascicles, but the color of the conidiophores is different, and the conidia are wider in *C. Friesii*. (C. Chupp in litt.)

- Cercospora Menispermii** Ell. & Holw. On *Menispermum canadense*, Univ. Spores up to $40-60 \times 5-6 \mu$. Overholts (Mycologia, 26: 502) finds them $18-52 \times 4-6 \mu$ in Pennsylvania.
- monilica** Ell. & Holw. On *Asplacarpus monilica*, Univ. Spores narrow, linear, $60-85 \times 3\frac{1}{2}-4 \mu$, stromata large, dark.
- **Opuli** (Fuehl.) v. Böhm. On *Ysotrum Opulæ*, Gilbert Plains, Man., on *Y. pauciflorum*. Lake Winnipeg, Sask. $35-50 \times 2\frac{1}{2}-4 \mu$. See *C. varia*.
- **Osmorrhizae** Ell. & Ev. On *Osmorrhiza longistylis* (nov.) $40-90 \times 4 \mu$.
- **passalacroides** Wint. On *Amorpha canescens*, Birds Hill. Spores clavate, usually 1-septate, $30-52 \times 6-8 \mu$. Not a typical *Cercospora*, may possibly be identical with *Cladosporium Amorphae* Thüm.
- **Rhamni** Fuehl. On *Rhamnus alatifolia* Brulsh. $62-100 \times 3-6 \mu$. Resembles *C. sergentiae* Cooke, except in lacking the green color of the clusters of conidiophores.
- **rholma** Cooke & Ell. On *Rhus Toxicodendron*, Thunder Hill. Not mature and therefore doubtful.
- **roscicola** Pass. Very common and often injurious on wild roses, especially when cultivated in hedges; Man. and Sask.
- rubigo** Cooke & Hark. On *Spiraea salicifolia*, Berens River, Man. $47-75 \times 3-4 \mu$. Dr. Sothern writes that this species should perhaps be excluded from *Cercospora*.
- Sagittariae** Ell. & Kellerm. On *Sagittaria latifolia*, Victoria Beach, Winn. $50-100 \times 6-7 \mu$.
- **salicina** Ell. & Ev. On *Salix* sp., Clear Lake. $18-40 \times 3-5 \mu$.
- **aquiloides** Peck. On *Clematis ligusticifolia*, Univ., Indian Head, Sask. $35-88 \times 4-5 \mu$.
- **subanguinea** Ell. & Ev. On *Mutinusethum canadense*, Berens River, Univ. $22-58 \times 3-5 \mu$. Not a typical *Cercospora*.
- **Symphoricarpe** Ell. & Ev. On *Symphoricarpos occidentalis*, Univ. and Carberry, Man. Chamberlain, Sask. $24-44 \times 5-6 \mu$.
- **Thermopidiae** Kautz. On *Thermopsis rhombifolia*, Chamberlain, Sask. det. I. L. Connors; also at Swift Current, Sask. Apparently the first records for Canada.
- **umbra** Ell. & Holw. On *Bidens frondosa*, Victoria Beach. Probably this species, but not a good fruit. Spores $65-100 \times 6 \mu$.
- varia** Peck. On *Viburnum pubescens* (nov.) Man., on *V. pauciflorum*, Clear Lake, Man., Indian Head, Sask. $38-80 \times 4-5 \mu$. This may be the same as *C. Opuli*.
- Viciae-tricolleis** Brins. & Cava. On *Vicia tricolor* (cult. Penn.) Univ. Perhaps identical with *C. Viciae* Sacc.
- zebrina** Pass. Common and sometimes injurious on *Trifolium hybridum* in Man. and Sask.; on *T. repens* in Man. $50-130 \times 3-5 \mu$.
- **Ziziae** Ell. & Ev. On *Zizia cordata*, Birds Hill. $52-118 \times 4-6 \mu$.
- Cercosporiella Apocyni** (Ell. & Kellerm.) Treb. On *Apocynum androsaemifolium* and *A. androsaemum*, Univ. to Berens River and Dauphin. $35-60 \times 4-6 \mu$.
- **cana** Sacc. On *Aster cordifolius*, Berens River, on *Salidago canadensis*, Univ. $30-100 \times 4-5 \mu$.
- Gel. Dearness & Husby** (71: 124). On *Geum strictum*, Brandon, Killarney, Oakville and Univ. Spores small, mostly hypophylloous, spores $28-70 \times 2-3 \mu$. *Cylindrosporium* Ovi Farl. (q.v.) agrees so closely that it seems to be the same species.
- Needles Dearness & Husby** (71: 125). Type collected at Furwarren, rather common and sometimes injurious to the weed *Neslia persicaria* in western Manitoba, found by Dr. Henry to be common also in Alberta, an immature specimen, apparently this species, from Indian Head, Sask. $30-80 \times 2\frac{1}{2}-4 \mu$.
- **Passinaceae** Karst. On *Passinaca trifida* escaped from cultivation, Brandon. $40-60 \times 2-4 \mu$.
- Cladosporium Teadaceum** J. J. Davis. A doubtful specimen on *Scilla alba* var. *papyrifera*, Univ. $14-18 \times 6 \mu$.
- carphophilum** Thüm. Reported on *Prunus* sp., cult., Morden. Specimens not seen by the writers, but to be expected in plantations of plums such as those at Morden.
- **cucumerinum** Ell. & Arth. Often injurious to *Cucumis sativus* in greenhouses, Winnipeg.
- **Epimycetes** Cooke. A *Cladosporium*, perhaps only *C. herbarum*, is not uncommon on old *Hebe*, *Rosa*, etc., in Man.

Cladosporium fulvum Cooke. "Lead-mold" is often ascribable to *Lyperium aculeatum* in greenhouse Winnipeg.

— *grandinum* Corda. The *Cladosporium* common on old stems of cereals and grasses is included in this species with uncertainty.

herbarum (Pers.) Link. Everywhere on plant parts or remains, in soil, better as a laboratory contaminant etc., in Man. and Sask. Certain other species of *Cladosporium* listed here are possibly forms of this variable species.

Paeoniae Pass. Occasionally found on spots on leaves of *Paeonia officinalis*. Univ. Spores $10-25 \times 8-8 \mu$.

laterosporium Corda. On rabbit dung, Univ. Spores somewhat rough, one- or two-celled, mostly $18-21 \times 7-9 \mu$.

subsessile Ell. & Barthol. On *Populus balsamifera* and *P. tremuloides*, Univ. to Norway House, common sometimes on *P. tremuloides* in Sask. $13-25 \times 5-8 \mu$.

Cladotrichum polyaperum Corda. One collection on old wood, Univ. A crust of dark hyphae bears spores $15-18 \times 10-11 \mu$, with evidences of the beginning of perithecia (probably *Chaetophanes fusca* Fockel).

Clasterosporium carpophilum (Lév.) Aderh. (*Coryneum fegervackii* Oudem.) On twigs of *Prunus Besseyi*, Saskatoon, Sask., of *Prunus* sp., Pelly, Sask.

Coniothecium betulinum Corda. On twigs of *Betula*. Victoria Beach, Lake of the Woods. Black pustules arise from the twigs, bearing aggregations of spores, the individual cells of which are $4-6 \mu$ in diameter.

— *effusum* Corda. On old wood, Univ. Spores in clumps, each one-, two-, three- or four-celled.

Coremium cinereo-album (Bonord.) Sacc. On rabbit dung in a damp chamber, Univ. Stalk cylindrical, bearing a gray green head, the whole about 1 mm. high. Spores $3-5 \times 1\frac{1}{2}-2 \mu$, borne in chains on dichotomously branched sporophores.

— *microcephalum* Berk. & Curt. On dung, Univ. Fruit bodies $\frac{1}{2}$ mm. tall, white, head oval, bearing spores $9-10 \times 4-5 \mu$, in chains.

glaucom Link var. *fimicola* March. On dung of field-mice, Univ. Spores $4-5 \times 3-4 \mu$, hyaline.

Cylindrium aeruginosum (Link) London. Very common, at least along the Red River, in autumn on fallen leaves of *Quercus macrocarpa*. This species was not found recorded on oak in Seymour (15). It fits the description = Rabenhurst Krypt. Flora. The spores are mostly $16-24 \times 2-3 \mu$, cylindrical, straight. The tufts on the leaves are yellow-green. *Polysporium flavum* Sumstoe (*Myrothia*, 6: 25) must be very different.

— *elongatum* Bonard. Rather common in October and November on fallen leaves of deciduous trees of the same season, tufts whitish, spores somewhat shorter than in *C. aeruginosum*. *Polysporium serotum* Sacc. may be the same thing.

Cylindrocarpum candidum (Link) Wollenw. Occasional in soil determined with some doubt by C. D. Shearshoff. Culture white with cream-colored masses of spores $42-58 \times 5-6 \mu$.

— *candidum* var. *maius* Wollenw. Twenty-seven isolations from soil. Cultures somewhat darker than in the preceding, spores $50-64 \times 5-6 \mu$.

— *didymum* (Hartig) Wollenw. Not uncommon in cultivated soils. Spores mostly one-septate, $20-28 \times 3\frac{1}{2}-4\frac{1}{2} \mu$.

thetersonum (Berk. & Broome) Wollenw. Sixteen isolations from soil. Spores $16-20 \times 3-4 \mu$, one- or two-celled.

— *radicicola* Wollenw. (*C. macrosporum*). Apparently common in soil. $20-40 \times 5-7 \mu$.

Cylindrocolla Urticae (Pers.) Bonard., stage of *Collonia fusaroides*, g.s. Found once at Selkirk in early June on stems of *Laportea condensans* of the preceding year. Spores mostly $10-14 \times 1\frac{1}{2}-2 \mu$.

Daetyleum dendroides (Bull.) Fr., stage of *Hypomyces rosellus*, g.s. On *Cantharellus*, *Lenzites* and *Polyporus tomentosus* in eastern Manitoba, isolated once from forest soil. Cultures pink to purplish, spores $20-40 \times 9-12 \mu$.

Diocorum Psoraleae Ell. & Barthol. On *Psoralea eschscholii*, Brandon. A dark mold-like growth is produced on the leaves, with spores $18-30$ (40) $\times 8-10 \mu$, mostly one-septate, sometimes with two or even three septa, pale olivaceous, slightly roughened.

- Didymaria didyma** (V'ager) Schroet. On *Anemone canadense*, Morden. Black Island in Lake Winnipeg. Spores $16-24 \times 6-10 \mu$, two-celled, hyaline. One collection had also many macroconidia about $7 \times 1 \mu$. Seymour (15) gives the authors as (V'ager) Poudel.
- Epithecium nigrum** Link. Occasional in soil and roots of cereals in Man. and Sask. Spores spiny: $20-25 \mu$.
- **purpurascens** Ehb. In roots of *Triticum aestivum*, Indian Head, Sask.
- Eosporium Tiliae** Link. Abundant on dead branches of *Tilia americana* along the Red River. Spores up to $90 \times 15 \mu$.
- Fumago vagans** Frey. Common in damp regions on honey-dew on leaves of various plants in Man.
- Fusarium** ^{arthropoduloides} Sherb. Isolated once from diseased basal parts of *Avena sativa* in Man., once from a peach from Ontario.
- **avenaceum** (Fr.) Nare. In soil on twigs of *Tilia americana* and *Eleagnus*, in basal parts of *Metelago sativa*, *Veronica alba* and *Caragana*, from rotted beds of Dahlias, from pink grains of *Avena sativa*, very commonly associated with basal parts of *Triticum aestivum*, *T. durum*, *Avena sativa*, *Hordeum vulgare*, and *Suaeda ceratoides* in Man., from *Metelago sativa*, Indian Head, Sask.
- **avenaceum** var. **velutatum** Wollenw. Isolated once from basal parts of *Triticum aestivum* from Pipestone, Man.
- **avenaceum** form 1 Wollenw. From stalk of *Zea Mays*, Saskatoon, Sask., 1923 (det. Wollenweber, as *F. avenaceum*).
- bulbigenum** Cooke & Massow. Isolated from butter; occasionally isolated from diseased basal parts of *Triticum aestivum*, *Avena sativa* and *Hordeum vulgare* in Man., caused serious injury to bulbs of daffodil imported into Sask.
- **bulbigenum** var. **Lyopernaici** (Bruck.) Wollenw. A *Fusarium* wilt of *Lycopodium obscurum* is occasionally found, but the fungus has not been definitely determined. However, the variety *Lyopernaici* has been isolated occasionally from basal parts of *Triticum aestivum*, *Avena sativa*, and *Hordeum vulgare* in Man.
- **ceresulium** (Lib.) Nare. A common cause of rot in tubers of *Solanum tuberosum* in storage, isolated never from soil in Man., from wheat roots, Saskatoon, Sask.
- **conglutinans** Wollenw. var. **Callistophylli** Bruck. Destructive to *Callistophyllum charnouxii*, except that the plants may escape during their first year in new soil. This wilt, together with aster yellow, has almost ended the cultivation of asters in Man. The aster varietal resistant to wilt have not yet solved the problem in Manitoba.
- **culmorum** W. G. Smith, Nare. Occasional in scabbed heads of *Triticum aestivum* in Man. and Sask. this species and the variety *ceratoides* are frequently associated with foot rots of *Triticum* spp., *Avena sativa* and *Hordeum vulgare*, in basal parts of *Bromus inermis*, in head blight of *Bromus inermis* and in soil in which cereals have been grown in Man., not yet isolated from virgin soil. See (Greaney and Marchant (190, 191, 223) and Sammons (41).
- culmorum** var. **ceratoides** (Cooke) Wollenw. Perhaps even more common and injurious in Man. than the preceding, from which it is not easily differentiated, in scabbed *Triticum aestivum*, Saskatoon, Sask., 1925 (det. Wollenweber).
- dimerium** Frey. Three isolations from butter in Man., and a few from soil.
- **Equiseti** (Corda) Nare. Occasionally isolated from soil, of very common occurrence in basal parts of *Triticum aestivum*, *Avena sativa*, *Hordeum vulgare*. Seeds cereals, also in *Bromus inermis* in "scabbed" heads of *Triticum* in fruits of *Cucumis citrullus* and *Lycopodium complanatum* in basal parts of *Lathyrus silvestris*, *Phaseolus vulgaris* and *Meibomia* sp. across southern Manitoba, from roots of *Triticum*, Indian Head, Sask.
- **Equiseti** var. **bulbigenum** (Sherb.) Wollenw. In crown of *Triticum*, Bellevue, Sask., 1925 (det. Wollenweber).
- **graminearum** Hehrle. Not found by Dr. Gordon in extensive isolations from cereals, but apparently its perfect stage *Gibberella zeae* (Fr.) has been isolated on old stalks of *Zea Mays* at Cary, so this *Fusarium* may occur but if so, rarely and not as an important pathogen.

* Dr. E. I. Gordon of the Dominion Plant Research Laboratory, Winnipeg, has kindly supplied this somewhat meagre survey from his records of species and hosts of the difficult genus *Fusarium*. (See also p. 141).

- Fusarium lateritium** Nann. Identified previously from twigs of *Fraxinus pennsylvanica* and *Acer Negundo* in Man. But when isolations were made from other *Acer* twigs *F. sporotrichoides* was obtained. *F. lateritium* must therefore be considered very doubtfully present.
- **Leaf Blight** Often injurious in fields of *Larix laricina* in Man and Sask. Resistant varieties of larch are now grown by many farmers.
- marionellae** (Corda. Referred by Henny (as *F. Retze*, Mann. Tech. Bul. 22 18, 1924) from Brandon soil, a few cultures from soil also in 1926.
- moniliformis** Sheldon. Not uncommon in soil and in butter in Man., isolated once from *Triticum aestivum* affected with foot rot.
- **orthoceras** Appel & Wollenw. In roots of *Triticum aestivum*, Indian Head, Sask.
- orthoceras** var **longius** (Sherb.) Wollenw. From crown of *Triticum aestivum*, Wolsley, Sask., 1925 (det. Wollenweber), in soil at Winnipeg, Man.
- **oxyperum** Schlecht. The commonest *Fusarium* in Manitoba soil, including virgin soil, isolated also from diseased basal parts of *Triticum aestivum*, *T. durum*, *Avena sativa*, *Hordeum vulgare* and *Sorale cereale* in Man., from wheat roots, Indian Head, Sask.
- **oxyperum** form 1 Wollenw. In soil of *Solanum tuberosum*. Common but not serious in Manitoba.
- **oxyperum** var **aurantiolum** (Lank) Wollenw. Occasional in soil, commonly isolated from diseased basal parts of *Triticum aestivum*, *Avena sativa*, and *Hordeum vulgare* in Man., and from wheat roots in Sask.
- **Poss** (Perk) Wollenw. In soil, including virgin soil, in basal parts of *Strawberry* stems and stems of *Artemisia canescens* and *Meibomia* sp., rather common in "soil" of *Triticum aestivum* and in kernels with pink discoloration, in dead fly (*Musca domestica*) in Man. From roots of *Avena sativa*, Saskatoon, Sask., 1922, det. H. W. Wollenweber.
- reticulatum** Munt. Occasional in soil and in diseased basal parts of *Triticum aestivum* and *Hordeum vulgare* in Man.
- reticulatum** var **trigardii** (Sherb.) Wollenw. Suspected of being present in the common red stain of wood of *Acer Negundo* in Man., but not yet isolated.
- sambucinum** Fuehr. Occasional in soil, isolated once from branch of *Acer Negundo*.
- sambucinum** form 4 Wollenw. (*F. durum sulphureum*). In soil in Man. Probably also a cause of rot of tubers of *Solanum tuberosum*, although it is now known that *F. trichothecoides* is the common cause. See Ruby (65) for isolation in cultures of this species.
- Sclerot** Lamb. & Fautr. Rather common in soil, occasionally isolated from *Triticum durum* and *Hordeum vulgare* in Man.
- Sclerot** var **acuminatum** (Eh. & Ev.) Wollenw. Common in soil, especially surface soil of cultivated fields on *Quercus laevis*, in branches of *Acer Negundo*, old stalk of *Zea Mays* and basal parts of *Meibomia* sp., occasionally from basal parts of cereals in Man., from roots of *Triticum*, Indian Head, Sask.
- **Sclerot** var **blivernum** (Preston) Wollenw. Isolated twice from *Triticum aestivum* affected with foot rot, perhaps only an associated species, also in decayed fruit of *Lycopersicon esculentum* in Man.
- **Soleni** (Martens p.p.) Appel & Wollenw. Identified by W. L. Lueden from "crown rot" of Caragana, L'arr., Man., and Saskatoon, Sask., also in basal parts of *Phaseolus vulgaris*, *Glycine max*, *Meibomia* aff., *Triticum aestivum* and *Hordeum vulgare* in Man., from wheat stems (det. Wollenweber) and wheat roots, Saskatoon, Sask.
- Soleni** var **Martii** (Appel & Wollenw.) Wollenw. Isolated from basal parts of *Lactuca scariola* and *Triticum aestivum* in Man. Probably this variety (or its form 2 Snyder) in root rot of *Psium sativum*.
- **sporotrichoides** Sherb. Occasional in soil, in twig of *Acer Negundo*, where it is possibly parasitic; isolated from "soil" of *Triticum aestivum*, and from dead branches of *Populus* in Man., in roots of wheat, Indian Head, Sask.
- **trichothecoides** Wollenw. Causes considerable rot of tubers of *Solanum tuberosum* in storage in Man.
- vaiofectum** Atk. In cultivated soil, especially in grass sod and fields of *Melospiza sativa* in Man.
- **vaiofectum** var **luteolatum** (Sherb.) Wollenw. Common in surface soil, especially in gardens in Man.

- Fusarium vasinfectum** var. **monatum** (Sherb.) Wollenw. One isolation from the soil of a wheat field in Man.
- Fusicladium dendriticum** (Wallr.) Fackel, stage of *Venturia inaequalis*. Common but seldom injurious on *Pyrus baccata* and *Pyrus* spp. across southern Man. and at Indian Head, Sask. Relatively few apples are grown, spraying for apple scab has not been necessary. The *Venturia* stage has not been found.
- depaeum** (Berk. & Broome) Sacc. On leaves of *Stum. multiflorum*, Univ. Spores 36-44 \times 4-6 μ . Transferred to *Scotlecotrichum* by Bubak. The following appear to be synonymus, *fol. Dearness*, *Cercospora clavigera* Ell. & Ev., *Dodgsonia atropurpurea* Ell. & Dearn., and *Habrothecoponium pennisoides* Peck & Clunt.
- radicium** (Lib. Lindb.) *Nigrocladium tremulae* (Frank) Sacc. stage of *Venturia tremulae*. Common on *Populus tremuloides* throughout Manitoba and in the "Park belt" of Sask. The young shoots are killed and blackened, so that the disease resembles fire-blight on apple; spots are also found on full grown leaves. Spores 20-30 \times 5-8 μ .
- Geomyces vulgaris** Traenkle. Several isolations from soil, especially of meadow-pears, in Man.; from roots of *Triticum aestivum*. Indian Head, Sask. Spores small, rounded or pyriform, 3-4 μ , on much branched conidiophores resembling those of *Monocarpium*.
- Goeblotrichum candidum** Link. Rarely isolated from soil in Man. The hyphae break up into spores 5-12 \times 3-4 μ , cylindrical with obtuse ends.
- Gloeocladium atrum** Gilmán & Abbott. Two isolations from soil in Man. Spores about 3 \times 7 μ ; the fungus fits *Gloeocladium* except that it is dark enough to be sought in the Dematiaceae.
- **minutulum** Gilmán & Abbott. Isolated from grass soil in Man. Colonies white then green, spores 5-8 \times 2½-3 μ .
- **triacropodinum** March. On dung of blue goose from Romey. Conidiophores branched, spores 8-14 \times 4-6 μ , in heads.
- penicilluloides** Curtis. In soil. Merges into *G. roseum*, colonies cream colored.
- **roseum** (Link) Burtet. Common in soil in Man., from roots of *Triticum aestivum*, Saskatoon, Sask. Culture salmon-pink, spores 4-7 \times 2½-4 μ , in dense "heads."
- Glomerularia Corni** Peck. On leaves of *Cornus canadensis*, Berens River, Victoria Beach, Man., Lake Waskesiu, Sask. Spores spherical, about 10 μ , in "glomerules."
- **Lanicosae** (Peck) Dearness & House. On leaves of *Lonicera canadensis*, Birds Hill, somewhat injurious on a hedge of *L. caerulea*, Portage la Prairie. Spores globose, very rough, 10-12 μ . Perhaps a form of this fungus on *L. salicina*, Univ., with smooth spores 7-10 \times 5-7 μ .
- Graphium stercorarium** March. On horse dung, Univ. Dark *Graphium* stalks arise, and numerous spores 5-10 \times 3-4 μ are produced at the tip.
- Hedotrichum lineare** Peck. On leaves of *Phragmites communis*, Cowan and Dauphin. Spots dark, spores 15-21 \times 6 μ , continuous.
- Haplographium bicolor** Grove. In surface soils and on old deciduous wood, Univ. Conidiophore brown, 5-6 μ wide, branching at apex as illustrated by Bunting in Mason (10). See *Scopularia Populi*.
- **haeupes** Fries! Sacc. Isolated from forest soil in Man. Like a *Penicillium*, except that the hyphae are brown.
- Harpesporium Anguillulae** Lohde. In nematodes, Univ. The nematodes on a culture of horse dung were attacked, and hundreds were killed. The hyphae develop in the animals, and conidiophores protrude through the body wall and bear sickle-shaped conidia (see 71: 127).
- Helioma Berkeleyi** Curt. On bark of *Populus*, Univ. Spores 4 μ wide, in a flat spiral coil 20-28 μ wide.
- **montipes** Ell. & Johnst. On bark of fallen *Populus*, Univ., Sept., Irwin Mowse and C. R. Bubak. Effused over the bark, macroscopically resembling an *Hypochnus*. Dr. Mowse found it to be a *Helioma*, and sent it to Dr. Linder, who replied that it was *H. montipes*, and that this is the first collection reported since 1893 when the type was collected in Michigan.
- olivaceum** (Karst.) Linder. On bark of fallen *Populus*, Univ. Tufts brown, spores in coils 15-18 μ wide. Det. Linder (Ann. Mo. Bot. Gard. 18: 11, 1931).

- Hellomyces ellipticus** (Peck) Morg. On a decayed beard, Univ. Spores forming upright coils $25-32 \times 14 \mu$. Determination verified by Linder (Ann. Mo. Bot. Gard. 18 11, 1931).
- Heliomyces gracilis** Morgan. On bark of dead Populus, Univ. Ticks green, spores $60-80 \times 1-1\frac{1}{2} \mu$, coiled into a lax flat spiral.
- Holminthosporium Avenae** Ebdm. On leaves of *Avena sativa*, Roblin Man. and Yorkton, Sask., of *Avena fatua*, Rouleau, Sask., in crown of *Avena sativa*, Brandon, Man.
- **Broad Driedcke**, stage of *Pyrenopeziza Brownii*, q.v. On leaves of *Bromus inermis*, throughout Man. and at Saskatoon, Sask. Brown spots appear on the leaves in early spring.
- **Truelformae** Cooke. On decayed wood of *Quercus macrocarpa*, Univ. Spores $22-28 \times 8-10 \mu$.
- **geniculatum** Tracy & Earle. Common in Manitoba in crowns and roots of *Avena sativa*, *Hordeum vulgare*, *Sorale cereale*, *Triticum aestivum* and *T. durum*; also from kernels of *T. aestivum*, three isolations from prairie soil. This species is perhaps better placed in *Boedya* a genus Curvularia.
- **granulosum** Rabenh. Fairly common on *Hordeum vulgare* in experimental plots and on larvae in Man. and Sask. Stripe disease has not been very common during recent dry years.
- **macrocarpae** Gray. On beeches of *Quercus macrocarpa*, Univ. Spores clavate, $90-120 \times 17-18 \mu$, about 8-celled.
- **trichosporum** Berk. & Br. Identified with doubt from soil.
- **sativum** Fennel, King, & Bakke. Very common in crowns and roots, sometimes on leaves, heads, or kernels of *Avena sativa*, *Hordeum vulgare*, *Sorale cereale*, *Triticum aestivum* and *T. durum* in Man. and Sask., on leaves of *Elymus canadensis* and *Hordeum jubatum* in Man. Different isolations vary considerably in pathogenicity. Isolated four times from the A horizon of a virgin meadow prairie soil, and seven times from soil in a wheat field. See Grayson and Machack (193, 191, 223) they report a white mutant (190), see also Ballance (26).
- **terre** Sacc. Common on leaves of *Hordeum vulgare* in Man. and in the "Park belt" of Sask., isolated from soil and from diseased kernels and root of *Triticum aestivum*, and from diseased roots of *Hordeum vulgare*, in Man.
- **teretiusculum** Sacc. & Berl. On an old barrel stave in the woods, associated with *Pyrenopeziza rugosa*, q.v., Univ. Spores c. $70 \times 10 \mu$.
- **tetrasporum** McKinney. Widespread but not abundant in crowns of *Triticum aestivum* and *T. durum* in Man., one isolation from soil.
- **tarulosum** (Byd.) Ashby. A species morphologically resembling *H. tarulosum* is found rarely in roots of cereals (J. E. Machack).
- **tritici-repentis** Driedcke. On leaves of *Elymus canadensis*, Carmar, Man., on *Triticum aestivum*, Assiniboia, Sask., with *Pyrenopeziza Tritici-repentis* stage present, det. J. E. Machack.
- **sp.** On *Bouteloua oligostachya*, Brandon. Associated with wilting and shrivelling of basal leaves. Spores obclavate about 8-celled, $70-80 \times 10-12 \mu$. This is one of several species, apparently undescribed, now being studied by Dr. Machack.
- Heterosporium Tavenae** Oudem. On leaves of *Hordeum vulgare*, Univ. Spores rough $18-28 \times 9-11 \mu$, becoming 2-celled, rarely 3-celled. Although associated with "false-stripe" of barley, this fungus is evidently not the cause of the disease. Mr. B. Peterson has made many isolations from affected leaves without obtaining this fungus or any other consistently and the trouble appears to be "physiological."
- **echinulatum** (Berk.) Cooke. On *Dianthus* sp., Saskatoon, Sask.
- **gracile** (Wall.) Sacc., stage of *Dryoglyphia fructu*, q.v. Often in, serious on cultivated Iris across Man. and in Sask. An examination of the Iris garden at the Morden Exp. Station in Sept. 1927 showed the following "species" infected: *I. flavescens*, *I. florentina*, *I. pallida diluvialis*, *I. pumila*, *I. umbellata*. The following were free from infection: *I. arvensis*, *I. cristata*, *I. germanica*, *I. longistylis*, *I. laurata*, *I. parviflora*, *I. ruthenica*, *I. setosa*, *I. sibirica*, *I. spicata* and *I. versicolor*. Maass (Proc. Indiana Acad. Sci. 35 93-102, 1929) reports similar observations in Indiana.
- **maculatum** Kuntze. On dead leaves of *Typha latifolia*, Univ. Mar. Spores slightly rough, 1 to 4-celled, up to $28 \times 9 \mu$ long (see Overholts, Mycologia, 21 274).
- **Phloe** C. T. Gregory. On *Phleum pratense*, Univ. Man. and Indian Head, Sask. Small spots are produced on the leaves of timothy, and a few echinulate spores were found.

- Hormodactis Talbot** Freese. On bark of *Populus*, Univ. July. White tufts are produced on the bark, the conidia are borne in chains, 3-celled, hyaline, $14-18 \times 6-8 \mu$. Size of spores was not stated by Freese.
- Hormodendrum antiquum** (Corda) Sacc. On twigs of *Fraxinus pennsylvanica*, Univ. The twigs are covered with a straggle of blackish mycelium and spores, the spores are made up of cells $8 \times 6-8 \mu$, adhering in indefinite chains.
- Hormodendrum viride** (Freese) Sacc. Occasional in soil. Other species of *Hormodendrum* are also present in soil.
- Hyalopus ater** Corda. One isolation from soil in Man. was determined by E. W. Mason to belong to this "group."
- **Tachytrachia** Corda. On old bark of *Populus*, Univ. Small golden tufts with conidiophores $45-60 \times 15 \mu$, non-septate, bearing at the apex pedicels about $15 \times 5 \mu$, which may remain attached to the spore, spores golden-ochraceous, non-septate, $40-50 \times 20-25 \mu$. Material rather scanty.
- Hymenophyllum Treaschei** (Schreb.) Martius. On the lichen *Peltigera canina*, Canis. Salmon-pink dense spots of the fungus bear rough globular spores $6-8 \mu$ wide.
- Lemonniera aquatica** de Wild. In the water in a small slough, Univ., Oct. 20, 1933, det. C. W. Lene. The spores were free in the water; they are stellate, as illustrated by de Wildeman. See *Tetradium*.
- Leptodactylium** sp. On decayed deciduous wood, Univ. Sporodochia white, $75-100 \mu$ wide, conidiophores fasciculate, $20-35 \times 1 \mu$, conidia barrel-shaped, $3 \times 4 \mu$.
- Microsporium Sagenariae** Peck. On leaves of *Sagenaria Vaccaria*, Univ. Spores $50-70 \times 14-16 \mu$. This is probably an *Alternaria*.
- Mimoblastys simplex** Gilman & Abbott. Rare in soil in Man. The fungus is as described and illustrated (*Iowa State College J. Res.*, 319, 1927) except that the whorls are more regular and the branches seldom curved 30μ in length. The spores are $34-34 \times 3-34 \mu$.
- Monacanthium** sp. Twenty-eight isolations from soil of a wheat field, in roots of *Triticum aestivum* in Man. and Sask. In culture the mycelium is white at first, later bearing dark olive-green areas of spores. Conidiophores elongated and slender, penicillate, spores $5-8 \times 2\frac{1}{2}-3 \mu$. Not in Thoen, "The Penicillia."
- Microstroma Juglandis** (Rehm) Sacc. On leaves of *Juglans nigra*, Morden. In "The Fungi of Manitoba" reasons are given for placing this fungus in the *Moniliales*. The host does not withstand the *Moniliales* climate.
- Mimilia Amelanchieris** Reiche. On fruits of *Amelanchier alnifolia* in Man. and probably in Alberta and Sask. Spores $14-16 \times 10-15 \mu$, in loose chains. This fungus was described (*Ann. Myc.* 6: 114, on *A. canadensis* in New York with spores $14-23 \times 10-14 \mu$. Roney (*Am. J. Botan.* 23: 100) reports apothecia.
- **aurum** Gmelin. On decayed wood, Clear Lake. Specimen in *Dianthus barbatus* only.
- **limicola** Cost & Matr. Injurious in a bed of *Psidium cuneipes* at Fort William, Ont., reported by an observant grower near Univ. Man., who had some difficulty getting rid of it. "Plaster-mold" describes the appearance well.
- **gossypii** (Ludm.) Isolated from roots of *Triticum aestivum*, Indian Head, Sask. Fungus in culture golden yellow, spores in chains, $3.4 \times 2 \mu$. A fungus appearing identical in appearance was isolated from soil in Man. but the spores were $6-10 \times 4-6 \mu$.
- implicata** Gilman & Abbott. Isolated from soil in Man., from roots of *Triticum aestivum*, Indian Head, Sask.
- **atrophila** Mont. & Sacc. Occasional as a laboratory "weed," rare in soil and butter in Man. Easily recognized by its rapid growth and salmon spores. The *Neurospora* stage has not been observed.
- Monosporium Delense** Mason (10: 59; *Myrogonia nigra* Jensen are 76, 78). Thirty-three isolations from soil of grass land or wheat fields in Man., but not found in other soils, from roots of *Triticum aestivum*, Indian Head, Sask. Described and illustrated by Mason (10).
- **imaginosa** (Lindb. & Maubl.) Mason (10: 59). From wheat kernels in an oven, Saskatoon, isolated by P. M. Rasmundse, det. E. W. Mason. Dr. Rasmundse kept his cultures at 55°C . It seemed possible that such a thermophilic fungus might thrive in "heating" plant material. It was found that it is easily obtained by taking grass from the centre of a pile of mown lawn grass, and placing it on agar held at 50°C , Univ., Man.

Myroderma spp. Very common in milk and butter

Myrogonia curvica Dittm. On some mushrooms in the woods, Univ., Man., on *Pedicularis campestris*, Saskatoon, Sask.

echinosa Boudier. On *Helvella*, Univ. A brown growth on the distorted host bears spores with a brownish rough upper cell $15-18\mu$ wide, and a small hyaline lower cell.

Myroconium oosporitatum J. J. Davis, probably a microconidial stage of *Sclerotium hyfrosa*, p. 8. On leaves of *Populus tremuloides* infected with *S. hyfrosa*, Lake Winnipeg at $51^{\circ} 30' N$. Spores $2-3\mu$, roundish.

Myrocladium arundinaceum (Corda) Sacc. On leaves of *Phragmites communis*, near Dauphin, Man., and at Fitts Lake and Prince Albert, Sask. Blackish spots are present on the leaves, spores 3-celled, pale brown, $40-48 \times 12-15\mu$.

Nigrospora sphaerica (Sacc.) Mason. Sometimes apparently injurious to rats of *Zen Mays* in field or storage, Univ. Mr. M. J. Timmerin made a special study of this fungus in 1932, which may be summarised as follows. It is to be found on overwintered stems of *Bromus tectorum*, in living heads, and especially inside the stems of the *Bromus* affected by a stem maggot, in stems of *Triticum aestivum* killed by wheat stem maggot, on head of *Agropyron tenerum*, on leaves of *Lycopodium complanatum* affected with insects. It would appear that the fungus may be introduced by the insect inside grass stems. The spores are apherical, $14-20\mu$, dark brown; the immature think they are small spores. Mason (10: 61) examined Manitoban specimens which make somewhat doubtful the distinction between this species and *N. Oryzae* (*Bosporum gallium* Moll.).

Ondosphaera Botryicola Oudem. On old paper in a damp chamber, Univ. Conidiophore 8μ wide, septate, enlarged at apex to a globe 30μ wide; spores borne on sterigmata on this globe, $6-8 \times 3-4\mu$, hyaline, somewhat rough.

glomerulaceum (Bull.) Sacc. On old stem of *Helianthus annuus*, and (with *Humaria satanes*) on decaying roots of *Medicago sativa*, Univ. Conidiophore erect, septate, about 10μ wide, apex a globe $30-40\mu$ wide, spores $16-20 \times 9-12\mu$.

Thyridium (Bonord.) Sacc. On old deciduous wood, Univ. Spores globose, $c. 4\mu$, slightly rough.

Ompura lactis (Fries) Sacc. Abundant in dairy products. *O. lactis* is perhaps a *Geotrichum*.

Ophioclaadium Hordeni Cav. On *Phalaris* sp., Indian Head, Sask., 1935, det. I. L. Connors, specimen at Ottawa. Spores $12-15 \times 7\frac{1}{2}-9\mu$ (Connors gives $8-8 \times 4\frac{1}{2}\mu$), otherwise the fungus seems to agree with *O. Hordeni*.

Ovularia aricularia Peck, possibly the same as *O. distartae* (Fuehl.) Sacc. On *Polygonum erectum* (Univ., Man.) on *Polygonum* sp., St. George, Sask. Spots round or irregular, spores $10-18 \times 5-7\frac{1}{2}\mu$.

— *Carlsoni* Ell. & Kellerm. On *Lactuca pulchella*, near Virden, Man. and at Indian Head, Sask. The leaves look as if they bore a downy-mildew in spots; spores $15-20 \times 7-10\mu$. destructive (Phill. & Flower) Mamee. On *Myrica gale*, Kenora and Minaki, Sept. Spots roundish, brown, spores $20-24 \times 7-9\mu$.

Osmium auriformum Link., a mycelial phase of *Cephus dematium*. The "golden hair" is common in woods. See Buller (32, vol. III: 38).

Pechybasium pyramidalis (Bonord.) Oudem. Encrusting crowns of grass, Univ., this may be the fungus found on charred wood of *Pinus Banksiana*, Virbia. Crust yellowish-brown, conidiophores with verticils of short branches bearing spores, spores $4-6\mu$, globular, hyaline.

Pneiloenryces succinaminomycetum (Bourge) Thom. One isolation from butter, det. C. Thom.

— *Variet* Baitier (*Pneiloenryces discoloratus* Thom.) Common in butter, rare in soil.

Papularia sphaerosporea (Pers.) v. Höhn. (*Conosporium Arundinis* Sacc.). On old stems of *Phragmites communis*, Delta, a few isolations from soil in Man., on bamboo stalks, Saskatoon, Sask. Known by its lenticular spores mostly $5-7\mu$ wide when flat, broken with a hyaline rim. See Mason (10: 16).

Pediospora parasitica v. Höhn. On decayed deciduous wood, Univ. det. D. H. Linder. A fine fungus with spores shaped like horn-shoes, about 3-celled, $13-16 \times 7-8\mu$, hyaline but pinkish in mass on the wood.

- Penicillium lalbidum* Sopp. One isolation from soil. All species of *Penicillium* included here were first determined by Thom. His book, "The Penicillia" gives descriptions (see also 76 and 78 for notes on Manitoba collections).
- *akramentosum* Thom. Rare in butter.
 - *aurantiobrunneum* Dierckx. Rare in soil and butter.
 - *brasilense* Thom. Occasional in soil. Chalky-white in culture, with a tinge of pink.
 - *brevicompactum* Dierckx. Occasional in butter.
 - *canescens* Sopp. In soil.
 - *carminiviolaceum* Dierckx. Common in soil. Beautiful shades of red and violet in Czepek's agar.
 - *chrysogenum* Thom. Very common in soil, especially cultivated soil, and in butter.
 - *testrosulfureum* Bourge. Isolated from flour by M. Timonin.
 - *cyclospium* Westling. Rare in butter.
 - *†Dierckxi* Bourge. In a forest soil.
 - *†Dufrenoyi* Delacr. In soil of a wheat field.
 - *expansum* Link et emend. Thom. Once from peat, presumably this species in rotting apples in Man. and Sask.
 - *flavidorsum* Bourge. Obtained deep in peat.
 - *frequentans* Westl. Occasional in soil.
 - *funiculosum* Thom. Eleven cultures from soil.
 - *fuscum* Sopp. In a forest soil.
 - *Gladioli* McCulloch & Thom. Common and often injurious on corms of *Gladiolus* sp. in storage; Winnipeg. Known by the abundant tan-colored sclerotia.
 - *griseoosum* Dierckx. In soil, near *P. chrysogenum*.
 - *griseum* Sopp. In butter.
 - *guttulosum* Abbott. Common in forest soils, especially in lower horizons.
 - *Herqueti* Baumer & Sart. A species in meadow soils belongs to this "series."
 - *implicatum* Bourge. A variety of this species in butter.
 - *intricatum* Thom. No less than 417 isolations from soil, especially surface soil, were placed in this species after a couple of cultures had been so determined by Thom. Not common in forest soils. Certainly this fuscescent type of *Penicillium*, with a grayish brown growth at first without spores, then becoming sticky-greenish as spores develop, is very common in the soil. Over and over again the same type of growth and colors would appear, but also there would be many forms "intergrading" to *P. Thomi* or even *P. janthinellum*. After examining more than 2,500 cultures of *Penicillium* from the soil, one feels that there is an almost endless number of forms in this genus many of these forms have been classified as "species."
 - *janthinellum* Bourge. Almost 400 isolations from soil were placed in this species, known to be a soil-inhabiting species.
 - *Johannstolii* Zukal. In butter.
 - *Kapuscinskii* Zukal. In soil.
 - *lanosum* Westling. In butter.
 - *lilacinum* Thom. In soil, especially of meadow-prairie, isolated from roots of *Triticum aestivum* at Saskatoon, Sask. A considerable range of forms is included in this species, characterized by a lilac surface growth; reverse on Czepek's agar usually yellow. *Spicaria violacea* Abbott is a striking form with pointed basia-like columns.
 - *luteum* Zukal. In a garden soil. Emmons (*Mycologia*, 27: 141) used the isolation from Manitoba in his study of *ascospora*.
 - *Martensii* Bourge. An isolation from butter.
 - *nigricans* Baumer in Thom. In a forest soil.
 - *ovalicum* Currie & Thom. In butter.
 - *†palitans* Westling. Deep in peat.
 - *purpuregenum* Stoll. Occasional in soil and butter.
 - *purpureascens* Sopp. In soil and butter.
 - *restrictum* Gilman & Abbott. Rather common in soil; one isolation from butter, from wheat roots; Indian Head, Sask. Known by its restricted growth and dark surface.
 - *Requesforti* Thom. Occasional in butter; also introduced with Requesfort cheese.

- Penicillium rugulosum* Thom. Common in soil, including peat, also in butter
 — *rugulosum* var. *atricolor* (Bainier?) Thom. Rare in soil.
 — *sanguineum* Sopp. In butter.
 — *simplicissimum* (Oudem.) Thom. In soil, especially surface horizon of forest.
spiculosum Thom. Not common in soil and butter.
 — *sublateritium* Bourge. From peat at depth.
 — *tardum* Thom. From a forest soil.
 — *Tartakowskii* Zelenk. Deep in peat.
 — *terrestris* Jensen. More than 300 isolations from soil, especially soil cropped with wheat, from roots of cereals, common in butter in Man. Rather variable, notes of isolations had a banana-like odor, others none.
 — *Thomii* Zelenk. Fairly common in forest soil and peat. Near *P. intrusion*.
 — *Thomii* Maur. Common in forest soil, also in other soils; on glumes of *Triticum aestivum* in roots of cereals. Known by the dense masses of yellowish, pinkish or brownish sclerota produced in culture.
variabile Sopp. Not common in soil.
verrucosum Dierckx. Isolated by M. I. Timonen from flour.
 — *viridicatum* Westling. Not common in soil and butter.
Piricularia grisea (Cooke) Sacc. On leaves of *Setaria viridis* and *Holcus sudanensis*; Neepawa and Univ.
Polycyrtum sericeum Sacc. On fallen leaves, Univ. Spores $10-15 \times 3 \mu$. Perhaps the same as *Cylindrium elongatum*.
Polyspora linali Pethybridge. On *Laurus uniflorum*, Saskatoon and Watson, Sask. This fungus is reported also in Alberta, but has not been collected in Man.
Polythrincium trifolii Kunze. stage of *Cynodotera* (*Dactydella*) *trifolii*. Common on leaves of *Trifolium hybridum* and *T. repens* across Man., north to The Pas, and in Sask.
Ramularia Actaeae Ell. & Holw. On leaves of *Actaea* spp., *A. rubra*, and *A. rubra* var. *neglecta*, Clear Lake, Eden and Norway House, Man., on *Actaea* sp., Lake Waskesiu, Sask. $20-30 \times 4-6 \mu$.
 — *anomala* Peck. On leaves of *Polygonum Mühlenbergii*, Univ. Agrees with co-type specimens from Nebraska. Spores narrow, $10-16 \times 1\frac{1}{2}-2 \mu$.
 — *Armoraciae* Fueki. On leaves of *Ranunculus Armoracia* (*Ranunculus rustica*), Kenora, across Man., and at Saskatoon, Sask. $18-26 \times 2-3 \mu$.
arvensis Sacc. On leaves of *Potentilla anserina* and *P. monopetala*, throughout Man. Tufts epiphyllous or sometimes amphigenous, spores $18-32 \times 3-4 \mu$.
Asteria (Phill. & Maw.) Bubak. On leaves of *Aster Incone-anglicae*, Clear Lake. Conidiophores fasciculate; spores $18-36 \times 4-5 \mu$.
Celastris Ell. & Martin. On leaves of *Celastrus scandens*, Univ. $19-23 \times 4 \mu$.
 — *cercosporoides* Ell. & Fv. On leaves of *Epilobium angustifolium*, Foxwarren, Norway House and Vista. $18-30 \times 4-5 \mu$.
 — *ellipsoidea* J. J. Davis. On leaves of *Polygonum rianode*, Minaki and Pointe du Bois; det. J. J. Davis. $20-25 \times 3 \mu$.
 — *eococcinea* Dearness & Bosky (71: 129, not *R. coccinea* (Fueki) Vestergren 1902). On leaves of *Cassiopea coccinea*, near Roblin. No further collections of this fungus have been made. It appears to be different from *R. Castellae* Ell. & Fv. Spots reddish-gray, irregular; conidiophores amphigenous in dense tufts, spores $18-30 \times 4-6 \mu$, mostly about 30μ long and 2-celled.
 — *decipiens* Ell. & Fv. On leaves of *Rumex crispus* and *R. acetosa*, Dauphin, Oakville and Riton. $18-30 \times 3-4 \mu$.
 — *Gai* (Eliam.) Lindroth. On leaves of *Geum triflorum*, Brandon. Spots grayish brown with purple margin, spores $20-30 \times 2-3 \mu$.
 — *Heraclei* (Oudem.) Sacc. On leaves of *Heracleum lanatum*, Dauphin, Lydett and Univ., Man., Indian Head, Sask. $23-33 \times 6-5 \mu$.
 — *Impatiensis* Peck. On leaves of *Impatiens Nifora*, Berens River. Spores clustered non-septate, $18-22 \times 4-5 \mu$.
 — *isophylla* J. J. Davis. On leaves of *Viola canadensis*, Droptown, Man., Indian Head and Lake Waskesiu, Sask., on *V. Nuttallii*, Indian Head, Sask. Spores $21-38 \times 4-5$ (6) μ , mostly 2-celled, sometimes 3 or even 4-celled.

- Ramularia Lappulae** J. J. Davis. On leaves of *Lappula deflexa*, Treebank, Univ. 14-22 \times 4 μ .
- **Lychnachia** Thüm. On leaves of *Strombos ciliatum*; Univ. Probably this species, but not in good fruit.
- **Magnusiina** (Sacc.) Linder. On leaves of *Trientalis americana* (T. borealis), Barren River. 20-28 \times 4 μ .
- **Tronchicola** Sacc. On leaves of *Mentha glabrior*, Victoria Beach. 14-36 \times 2-3 μ .
- **Pastinacae** (Kart.) Linder & Vestergren. On leaves of *Pastinaca sativa*, Winnipeg. 22-29 \times 3 μ .
- **punctiformis** (Schlecht.) v. Höhn. On leaves of *Epilobium adenocaulum*; Duck Mountain and Victoria Beach. Spores c. 30 \times 3 μ .
- **rosea** Fuekiel. On leaves of *Salix* sp., Univ. and Vista, Man., Indian Head, Sask. 15-21 \times 3-5 μ .
- **Rudbeckiae** Peck. On leaves of *Rudbeckia laciniata*, Beauséjour to Dauphin. 30-47 \times 3-5 μ .
- **rufomaculata** Peck. Common on leaves of *Polygonum erectum* and *P. Mullenbergii*, Univ. to Valley River. Spores 10-30 \times 2-5 μ . Perhaps better placed as *Septophyllum rufomaculata* (Peck) Ponce & Clements.
- **sepium** Dearness & Bisby (71 130). On leaves of *Conioselinum sepium*, Minkiti. Spots roundish-angular, spores mostly 15-25 \times 3-4 μ . A *Septoria* also is present.
- **subrufa** Ell. & Holw. On leaves of *Sisylia herbacea*, Univ. Spots reddish above, spores hypophyllous, 20-25 \times 3-4 μ .
- **Tanacetis** J. Lind. On leaves of *Tanacetum vulgare*, Univ. Spots brownish, spores large, 28-50 \times 4-5 μ , commonly 2-celled, rarely 4-celled.
- **Taraxaci** Karst. Common on *Taraxacum officinale* in Man.
- **Tulaneae** Sacc. stage of *Myrotharalla fragariae*. Common and somewhat gregarious on cultivated and native species of *Fragaria* in Man. and Sask., including *F. glauca* in Sask. Spores 14-15 \times 2-4 μ . Perfect stage not yet found.
- **umbellina** J. J. Davis. On leaves of *Oenanthe Lonicera*, Ingolf. Spots amber roundish; spores hypophyllous, 8-15 \times 2-3 μ , 1- or 2-celled.
- **Urticae** Cos. On leaves of *Laportea condensata* and *Urtica gracilis*, Dauphin, Univ. Spores 10-28 \times 2½-4 μ , commonly 2-celled.
- **variegata** J. J. Davis. On leaves of *Mentha arvensis* var. *condensata*, Univ. Spots small, brownish becoming almost black, spores 28-40 \times 3-3½ μ . *R. menthicola* is recorded on whitish spots.
- **variegata** Ell. & Holw. On leaves of *Polaris palustris*, Victoria Beach. Spores 16-25 \times 3-4 μ , commonly 2-celled.
- **Viburni** Eu. & Ev. On leaves of *Viburnum Opulus*, Gilbert Plains. 23-36 \times 2½-3 μ .
- **Virgaureae** Thüm. On leaves of *Solidago galioanensis* and *S. hispida*, Barren River, Univ., Winnipeg Beach. Spores commonly 20-30 \times 3-4 μ , but sometimes up to 100 μ long. This fungus has been placed in *Cercospora* and *Cercosporiella*, but Chupp (in litt.) leaves it in *Ramularia*.
- Rhinotrichum ?griseum** Sacc. On old deciduous wood, Univ. A gray, effused growth bears septate conidiophores with conidia arising from sterigmata along the apical portions, spores reniform-shaped, 13-18 \times 10-12 μ . Scarcely Saccardo's species, which was described on a rust, but the spores are similar.
- **Noblesiae** Sumstine (Mycolopa, 29 230). Growing over boards on the wall of an ice-house; Univ. It looks like *Hypochnus* or *Conophom*, and is yellow-brown in color. It may be an imperfect stage of a Basidiomycete. Attempts by Drs. Mounce and Nobles to obtain cultures were unsuccessful.
- Rhizoctonia Crocorum** (Pers.) DC. stage of *Helicobasidium purpureum* (Tul.) Pat. On tubers of *Solanum tuberosum*, Prince Albert, Sask., coll. J. W. Marriott. Known also in Alberta. The perfect stage has not been seen.
- **Solani** Kühn. stage of *Coriaria Solani*, q.v. Common and often injurious on tubers, stems and stipes of *Solanum tuberosum* throughout Man. and Sask., in soil in Man., and in or on diseased roots of many plants including *Brassica oleracea* var. *capitata*, *B. napobrassica*, *Delphinium*, *Iberis*, *Lathyrus odoratus*, *Lyospermum caudatum*, *Sonchus oleraceus*, and

Tarumicum effusum, also on roots of cereals. *R. Solani* was found by Vanterpool (53) to be the main cause of early damping-off of flax in Sask. *Protophormium stramineum* discussed by Boller (52, vol. V).

Rhynchosporium Toxopneum Corda On herbaceous stems and an old wasp's nest, Univ. Rembles *Ondorephalum*, but the spores are dark. A brown conidiophore arises about 1 mm high, 15 mm wide, apex not seen, it swells at the apex to a globe 75 μ wide covered with sterigmata bearing spores 55-60 \times 23-25 μ , brown, paler near the base but dark brown at the hilum. These spores have the length of *R. zigaeum* but the width of *R. macrosporum*.

Rhynchosporium Alismatis (Oudem.) J. J. Davis On leaves of *Alisma Plantago-aquatica* and *Sagittaria latifolia*, Birds Hill, Beauregard and Univ. Spores 14-30 \times 3-4 μ , hyaline, 2-celled.

— **Scedia (Oudem.) J. J. Davis** On leaves of *Hordeum jubatum* (Morton), Sask. of *H. vulgare*, Indian Head, Saskatchewan and Scott, Sask., of *Phalaris arundinacea*, Indian Head, Sask. Davis (Trans. Wis. Acad. Sci. 20: 420, 1922) discusses this and the preceding species.

Sclerotium blabens F. & F. On leaves of *Populus balsamifera* and *P. tremuloides*, Victoria Beach and Bull Head Lake Winnipeg. First found in 1931; it almost certainly does not occur in the extensive poplar groves near the University.

conspicuum T. & G. stage of a Typhula. On fallen leaves of *Populus*, etc., Univ. The dark reddish sclerotia are compact, lenticular and are to be seen on the damp leaves after the snow goes in April.

— **Maculium J. J. Davis** Common on old stems of herbs such as *Althaea* and *Saxifraga arvensis* Univ., April to early June. The yellow-orange sclerotia are at first embedded in the cortex of the dead stems.

Delphinii Wehls. Sometimes injurious to cultivated Delphiniums, Univ. and Winnipeg.

— **Glabidium Mamey**, stage of *Sclerotium Glabidi* Drayton. On corns of *Glabidula* shipped into Winnipeg, not found established as yet.

— **Nichenicola Brenden**. In tufts of *Cladonia frangulorum*, Victoria Beach, May. *Sclerotia* golden-yellow, somewhat of the consistency of cheese.

— **Thumscium Fries**. In moss, eastern Man., Sept. *Sclerotia* irregular, firm, golden-yellow to orange, cellular within when viewed under the microscope.

Solenotrichum Clavatum (Dean.) Racc. stage of *Helminthosporium Clavatum*, Fr. On *Clavaria cristata* Kretz, Sept.-Oct. The *Clavaria* is blackened with a dense growth of the parasite, conidia 16-26 \times 6-8 μ , brown, 2-celled.

graminis Fockel. On leaves of *Agropyron repens*, *Hordeum jubatum* and *Phleum pratense* across southern Man., on *Agropyron tenerum*, *Hordeum jubatum* and *H. vulgare*, Chamberlain, Kelliker, Rame, Scott and Saskatoon, Sask. The leaves turn brown, spores 32-44 \times 8-12 μ , 2-celled, brown.

Sopularia Populi Dearness & Hidy (71: 120). On bark of dead *Populus*, Univ. A brownish-black mold occurs on the bark, conidiophores erect, septate, brown, 300-600 μ long, 8-9 μ wide at base, 4-5 μ below the penicillate head, spores 3-4 \times 2 μ , bent together by mucus. The fungus is host to, or possibly identical with, *Heliophorium basale* Grove (see 10: 82).

Sopulariopsis brevicaulis (Racc.) Bazzaz Occasional in soil identified by M. Turonis as grasshoppers (*Melanoplus badius*) from western Man. very abundant on moldy hay and ensilage. Moldy sweet clover (*Melilotus officinalis* and *M. alba*) has been held responsible for the death of acres of cattle in Manitoba. The predominant mold present is usually *S. brevicaulis*, but as Brown, Savage and Robinson (31) point out, this fungus is evidently not the cause of the illness.

— *rufus* Bazzaz. Isolated from a surface soil. Colonies coffee-brown, spores 5-7 \times 3 μ , slightly rough.

Spodionum chrysospermum Fr. Common on Boletus spp. occasional on *Agaricus*, Univ. north and eastward. The fungus produces a golden growth on the hosts, usually after they have discharged their spores. The *Spodionum* spores are globular, rough, up to 22 μ in diameter. *S. chrysospermum* is a stage of *Hypomyces chrysospermus* (Bull.) Tel., which has not been collected in Man., nor did infected Boletus develop it in a damp chamber.

— *obovatum* Mance & Bulmon. On rabbit pellets, Univ. Tufts white, spores 14-28 μ , spherical, somewhat rough, arising from short sterigmata on the hyphae.

- Septocylindrium concomitans** (Ell. & Holw.) Rasted. On leaves of *Sidens ceruza*, *S. frendusa* and *S. vulpina*, Hurds Hill, Brandon, Univ. Spores $20-27 \times 4-6 \mu$, usually 2-celled, catenulate.
- Septomyxa affinis** (Sheerb.) Wollenw. Fairly common in soil and butter. Cultures produce a pale salmon-colored slimy growth, and abundant spores, commonly 2-celled. This is the fungus previously reported from Man. as *Hymenula affinis*.
- Spelra toruloides** Corda. On stubble of *Triticum aestivum*, Nov. 17, 1924, on a wooden greenhouse label which had been in a pot of cereals, then washed and left on a greenhouse bench to dry, April 20, 1929; both collections by R. C. Russell at Saskatoon, Sask. The fungus arises as little tufts of spores without evident mycelium, spores $35-64 \times 20-25 \mu$, brown, palette shaped, composed of 40-50 or more cells. They are exactly as illustrated by Mangin (Bull. Soc. Myc. France, 15, Pl. 11). Mangin thought the species might be *Dictyosporium opacum* and a conical form of *Leposphaeria herpetoboloides*. Guéguen (p. 21 '29) considers that *D. opacum* should be included with *Spelra toruloides* (*Dictyosporium toruloides* (Corda) Guéguen).
- Sphaecelia segutum** Lév. stage of *Cionospora purpurea*, q.v. Common on rye, etc.
- Spondyliocladium atrovirens** Harz. Rarely found on tubers of *Solanum tuberosum* in Man.
- Sporocybe tessulata** Sacc., or near. On old damp stems of *Suncho orenaria*, Univ. The stems in a moist chamber became covered with erect stilbum-like columns of hyphae, c. $400 \times 40 \mu$, with a head formed of sterigmata, and spores $5-8 \times 3-5 \mu$.
- Sporodanidium compositum** Berk. & Curt. On old twigs of *Crataegus* and *Fraxinus*, Univ. Sooty tufts bear irregular spores which are often muriform.
- Sporotrichum parasiticum** Peck. On *Dibotrya morbosum* on *Prunus*, Univ. The black-head bears the white mold, from which arise short conidophores with spores $5-6 \times 1\frac{1}{2}-2 \mu$, hyaline.
- *pulvisculum* Gilman and Abbott. Rare in soil.
- *roseum* Link. Occasional in soil. Color like pink to lavender, spores $3-4 \times 2-3 \mu$.
- Stachybotrys cylindrospora** Jemsen. Contaminating cultures, Univ. Hyphae $3-4 \mu$ wide, conidophores about 50μ long, somewhat rough near the apex, bearing apical branches with dark smooth spores $8-12 \times 4-6 \mu$.
- *lobulata* Berk. On old paper, straw, etc., Univ. Similar to the preceding except that the spores are rough and $8-12 \times 6-7 \mu$.
- Stemphylium macrosporioides** (Berk.) Sacc. Rare in soil, det. Dr. Wiltshire. Other species of *Stemphylium* are common, but difficult to determine.
- Stilbum parvulum** Cooke & Ell. On debris in forest, Univ. Stilbs pale yellow, short; spores $4 \times 1\frac{1}{2} \mu$, in masses.
- Streptothrix fusca** Corda. On dead twigs of *Corylus*, Minaki. Tufts sooty, nearly black, spores c. $8 \times 5 \mu$, brown. Another *Streptothrix*, from Kenora, is described by Samuels. (See p. 142).
- Styranus fumetarius** (Karst.) Massee & Salmon. On horse dung, Univ. Stalk up to 1 mm high, 12-15 μ wide, head slender, about $\frac{1}{2}$ mm long; spores in chains, $5-7 \times 3-4 \mu$.
- *imbricoporus* Sacc. On a contaminated agar culture, Univ. Head with projecting, flexuous hyphae, spores mostly $4 \times 3 \mu$.
- *steronites* (Pers.) Corda. Occasional on decaying plants, especially on rotted tubers of *Solanum tuberosum*, Univ.
- Tetrachlidium Marchalianum** de Wild. In water in a small slough, with *Lemnaea aquatica*, Univ. Det. C. W. Lowe, who has studied this organism in Quebec (Trans. Roy. Soc. Canada 3 ser. 21: 111, 1927), and has demonstrated that it is not an alga. Discussed by Karling (Mycologia, 27: 478, 1935).
- Tilachlidium humicola** Oudem. Isolated from soil in Man.
- Torula Albi** (Hars.) Sacc. In soil, Univ., det. Wiltshire, in wheat roots, Indian Head, Sask.
- *albina* Peck. On twigs of *Alnus incana*, Vivian, on Tbetung, Berens River.
- *convoluta* Harz. Occasional in garden soil, Univ., det. E. W. Mason. Spores $4-6 \times 4-6 \mu$, collecting in small heads.
- Trichocladium asperum** Harz. In garden soil, Univ. Spores 2-celled, the upper cell larger (see 10: 39).

- Trichoderma album** Presm. Fairly common in soil in Man. The cultures are white. The genus *Trichoderma* needs critical study. Some "strains" of *T. album*, though remaining white on agar, become green on sterilized leaves and stems.
- **glaucojum** Abbott. Not common in soil. Cultures become yellowish or pale greenish, spores c. $4 \times 3 \mu$.
- Kentagi** Oudem. Very common in soil in Man. and Sask., also in butter. Cultures floccose, green, spores oval.
- **ignorum** (Tode) Harz. Common on old wood, in soil and in butter in Man. and Sask. Cultures grow very rapidly, producing a thin white growth which soon becomes green in tufts where conidiophores produce the abundant conidia, conidia more or less spherical, $2\frac{1}{2}$ – 4μ . A potential parasite of other soil fungi (76). See also Butler (82, vol. IV).
- Trichosporium parvithecium** Dearn & Buby (71 131). On leaves of *Amelanchier alnifolia*; Univ. Spores reddish then yellowish, conidiophores hypophyllous, spores pale brown, continuous, 9 – 14×4 – 6μ .
- Trichothecium roseum** Corda (*Cephalothecium roseum* Corda). A very common mold in Man. and Sask. It is sometimes semiparasitic, e.g. on leaves of *Triticum aestivum* in the greenhouse and on fruits of *Prunus* sp. and *Cornus rugosa* in the field. *T. roseum* has been used by Gregory and Machacek (191) to "antagonize" root-rot fungi in soil.
- **subtuscescens** (Peck) Bacc. On old wood, Univ. Tufts pink, dense, isolated, spores 22 – 32×10 – 16μ , hyaline, 2-celled.
- Trimmatostroma americanum** Thim. Very common on dead twigs of *Salix*, occasional on *Populus*, Univ. to Valley River, Man.; Saskatoon, Sask. Sporodochia sooty-black, spores brown under the microscope, composed of an indefinite number of cells held together loosely in chains.
- Trinacrium** (Mycogonia) Tassi. On old *Salix*, together with several other fungi, Victoria Beach. Spores star-shaped with 3 arms each 3–6-celled and 15 – 20×4 – 6μ , hyaline.
- **subtile** Reuss. On dead stems of *Cornus alba*, Univ., coll. M. Timonin. Similar to the preceding, but the arms 36 – 40μ long, 4–6-celled.
- Tubercularia vulgaris** Tode, stage of *Nectria cinnabarina*, g.s. Common on branches of *Acer Nigrum*, *Cornus* sp., *Ribes* spp., *Pyrus baccata* and other plants in Man.; on *Prunus Sessilis*, *Ribes vulgare*, *Ulmus* sp., etc., in Sask. Sporodochia red or black, conidia 5 – $9 \times 1\frac{1}{2}$ – 2μ .
- Tuberculina parvella** (Dittm.) Bacc. On seeds of *Puccinia Caricis granularis* on *Ribes*, of *P. rubripes-agropyria* on *Anemone*, of *Uromyces Fabae* on *Vicia*, Cowan and Univ. Sporodochia purple, spores 7 – 9μ , globose.
- Verticillium albo-atrum** Reink. & Berth. Recorded (Can. Plant Disease Survey Report for 1984–44, 1935) as a cause of wilt of *Solanum tuberosum* in Man. Isolations made by the writers from wilted stems of potatoes have always yielded species of *Fusarium*. *V. albo-atrum*, or a species near it, was obtained rarely from soil.
- **tyloscum** Bonord. Not common in soil in Man. Colonies yellow-green, spores 3 – 7×2 – 3μ . (76 265).
- **Lactarii** Peck. On gills of *Lactarius* and *Russula*, Victoria Beach eastward. Often prevents discharge of spores by the mushroom. (Conidiophores verticillate; spores 14 – 26×10 – 12μ).
- **rubillum** Peck. In surface soil in Man. Cultures soon dark from chlamydosporous measuring 6 – 10×6 – 8μ , conidia 4 – 8×2 – 3μ .
- **terrestris** (Link) Bacc. In soil in Man. Cultures white, conidiophores verticillately branched; conidia 3 – 5×2 – 3μ .
- Velutaria foetida** (Alb. & Schw.) Fr. On samaras of *Fraxinus*, etc., Univ. Sporodochia cream-color, surrounded by slime, spores 5 – $12 \times 2 \mu$.
- **elliptica** var. **stipitata** (Lib.) Bacc. On horse dung; Univ. Sporodochia stalked, spores 4 – $5 \times 2\frac{1}{2} \mu$.
- **runzola** Cooke. In a surface soil in Man. (78 51). *

MELANCONIALES

- Actinomyces** Reess (Lib.) Fr., stage of *Diplocarpus Ranae* Wolf. Common, and sometimes injurious to cultivated roots, in Man. and Sask.

- Colletotrichum atramentarium* (Berk. & Broome) Taubenh. On stems of *Solomon induratum*; Univ. Man. and Univ. Sask. The fungus appeared to be parasitic in Sask., being present on the stems of a small patch which had been killed by the middle of August.
- *eleusina* (Berk.) Vogl. Rare on both scales of *Alnus Crm*, Univ.
- *Dematium* (Fr.) Grove (*Peridermium* Fr.). Common on old stems, including *Corallorhiza*, *Osmorhiza longistylis*, *Saxifraga stellata* and *Taraxacum officinale*, along the Red River in Man., on *O. longistylis* and *Zizia aurea* in Sask. Spores $17-24 \times 3-4 \mu$, fused, curved, continuous. On dahdichen at Emerson the fungus appeared to be weakly parasitic.
- *Dematium* var. *samaricola* Sacc. On samaras of *Fraxinus pennsylvanica*, Univ. Spores as in the preceding, and there seems to be little reason for calling this a variety.
- *erumpens* Sacc. On petioles of *Rhus Rhamnaceum*, Morton, Portage la Prairie, Winnipeg. Apparently causes injury to rhubarb, but the damage has not been studied critically. Spores $22-26 \times 3-5 \mu$.
- *Fusicoides* (Ell. & Kellerm.) O'Donn. reported to be a stage of *Glehnella discipulata*. Apparently in, on stems of *Asclepias* sp., Univ. Spores $15-25 \times 5-6 \mu$.
- graminicola* (Ces.) G. W. Wilson (C. cereale Manns) On *Avena sativa*, Grandell, Indian Head, Saskatoon, and Summerberry, Sask., on *Reichmannia Symplocos* and *Poa pratensis*; Univ. Man., probably this fungus on *Agropyron tenerum*, Roethern, Sask. Spores $22-25 \times 4-5 \mu$, setae about $70 \times 8 \mu$.
- *Hennell* (Dearness) (132) On living leaves of *Humulus Lupulus*, Brandon (Margaret Newton and Univ. Type from Kansas, also known in Maryland. Spots small, yellowish to brown, asexual 50-110 μ , with few brown setae, spores $14-21 \times 4-6 \mu$.
- *Liliacearum* (Westend.) Ferrar (*Peridermium* Westend.) On living leaves and stems of *Smilax arborea* L. var. (See Miss Duke, Trans. Brit. Myc. Soc. 12: 172.)
- *Lindernuthianum* (Bacc. & Magn.) Bryon & Cav. Not common, but sometimes injurious, to *Phoradendron vulgare*, Brandon and Winnipeg, Man., Indian Head, Roethern, Saskatoon and Scott, Sask.
- [— *phoradendri* (Sacc.) Chester. On fruits of *Lycopodium carolinense* shipped to Winnipeg from the Bahamas. Not found on native plants.]
- *Piel* Pat. One collection on leaves and pods of *Phaseolus sativus*, Brandon. coll. I. L. Connors; Aug. 4, 1923. Spots brown, spores $18-20 \times 4 \mu$.
- *Rudbeckiae* Peck. On old stems of *Rudbeckia hirtella*, Carman and Selkirk. Conspicuous on the dead stems, spores $15-27 \times 4 \mu$.
- Corynaeum* Kunzei Corda. On twigs of *Quercus macrocarpa*, Univ. Spores brown, septate, $55-75 \times 12-15 \mu$.
- *pusillum* Peck. On small twigs of *Quercus macrocarpa*, Univ. Spores up to 90 μ long; perhaps only a form of the preceding.
- Cryptosporium nubilum* Ell. & Ev. On Carex sp. Univ. Spores $18-24 \times 3 \mu$. Entered by mistake under *Lepidostoma caricinum* in "The Fungi of Manitoba."
- Cylindrosporium Apocyni* Ell. & Ev. On leaves of *Apocynum cannabinum*, Elton, Man., of *A. scopulorum*, Saskatoon, Whitewood and Wroxton, Sask. Spores in a specimen from Sask. were $40-95 \times 3-4 \mu$, the specimen from Man. has somewhat narrower spores.
- *Artemisiae* Dearness & Barthol. On leaves of *Artemisia grapholodes*, Dauphin and Roblin. Spores brown under the white hairs of the host, spores $50-70 \times 2-4 \mu$.
- *Clematidis* Ell. & Ev. On leaves of *Clematis integrifolia*, Bethany, Man., coll. R. C. Russell, det. J. J. Davis.
- *erascantum* Barthol. (*Septoglossum erascantum* (Barthol.) Dearness in litt.). Sometimes abundant on leaves of *Passiflora sativa*, Univ. and Winnipeg. Spores $50-70 \times 3-6 \mu$, commonly crescent-shaped, septate.
- Cal* Farlow. On leaves of *Geum strictum*, Clear Lake, and probably elsewhere on *Cercocarpus* Ges.
- *Heraclei* Ell. & Ev. On leaves of *Heracleum lanatum*, Lydiatt to Swan River, Man.; Meeting Lake, Sask. Spores $40-70 \times 3-4 \mu$. *Septaria Heraclei* (Lib.) Damm. may be the same fungus.
- *himalaia* Higgins, stage of *Nappaea himalaia* (Higgins) Nannfeldt (*Coccomyces himalaia* Higgins). Common on leaves of *Fraxinus pennsylvanica*, Norway House southward and

- across Man., and at Saskatoon, Sask. Conidia $40-86 \times 3-4 \mu$. A collection at Minaki bears a *Phyllosticta* with spores $4 \times 1 \mu$, possibly a stage of *C. hemale*.
- Cylindrosporium leptospermum** Peck (*Ceroaspora leptosperma* Peck) On leaves of *Arnica monticola*; Beausejour, Berens River and Clear Lake, Man., Cochen and Lake Wabesko, Sask. Dr. Chupp considers that this species is properly placed in *Cylindrosporium*. The spores bear a whitish mold-like hypophylleous growth, spores $60-100 \times 2-3 \mu$.
- **lutescens** Higgins, stage of *Hippocelia lutescens* (Higgins) Nannfeldt On leaves of *Prunus virginiana*, Lydiatt, Norway House.
- **Teffionia** Ell. & Ev. Immature on *Sapindus affinis*; Morden.
- **Phalaridia** Sacc. & Dearness On *Phalaris arundinacea*, Indian Head, Sask.
- **Prunophorus** Higgins, stage of *Hippocelia Prunophorus* (Higgins) Nannfeldt. On leaves of *Prunus americana* or *P. nigra*; Morden. $60-55 \times 4 \mu$.
- **salicifoliae** (Trel.) J. J. Davis. On leaves of *Salix alba* (*S. latifolia*), Berens River to Minak. and Neepawa. $30-60 \times 2-4 \mu$.
- **sibiricus** Dearness & Baby (Mycologia, 20: 245) Type on leaves of *Apocynum sibiricum*; Pierson, Man., on *A. scopulorum*, Orbow, Sask. Spores $22-45 \times 3 \mu$, 1 to 3-septate.
- **Sentia** Ell. & Ev. On leaves of *Sentia stellata*, Treedbank, Univ., det. Dr. Seelheim. Spots reddish, numerous, spores $15-30 \times 2-3 \mu$.
- **Thalictri** (Ell. & Ev.) J. J. Davis. On leaves of *Thalictrum* sp., Lydiatt. $40-80 \times 2-3 \mu$.
- **Tetradendri** (Ell. & Martin) Ell. & Ev. On leaves of *Rhus Tetradendron*, common at Victoria Beach, Man., and found also in Sask. Spots gray in centre, margin dark, broad, spores $40-80 \times 2-4 \mu$. See Mycologia, 8: 105.
- Entomosporeum maculatum** Lév. On *Amelanchier alnifolia* Meata, Sask., on *Pyrus* sp., Brandon, Man. and Rosthern, Sask.
- Gloeosporium Betulae-papyriferae** Dearness & Overholts. On leaves of *Betula alba* var. *papyrifera*, Kenora and Morden. Spots brownish with the centre darker on the upper side of the leaf, spores small.
- **Chamaedaphnia** Dearness. On leaves of *Chamaedaphne angustata*, Kenora. Spots brown, spores $15-18 \times 7-8 \mu$.
- **confusus** Ell. & Dearness. On leaves of *Sagittaria latifolia*, Univ. Spots translucent, acervuli confluent, spores $8-12 \times 3-4 \mu$.
- **Coryli** (Desm.) Sacc. On leaves of *Corylus rostrata*, Univ. Spots reddish-brown, spores $14-20 \times 5-7 \mu$.
- [— **Musarium** Cooke & Masser. Common on old "peel" of *Musa sapientum* in Winnipeg markets. Spores $10-14 \times 4-5 \mu$.]
- **Polygoni** Dearness & House. On leaves of *Polygonum sagittatum*, Minaki. $4-8 \times 2 \mu$.
- **Psoraleae** Peck. On leaves of *Psoralea cuneolata*, Camp Hughes, coll. W. L. Gordon. $17-22 \times 4-6 \mu$.
- **Ribes** (Lib.) Mont. & Desm., stage of *Pseudopeziza Ribes*. On leaves of *Ribes cereum*, Univ., Man., of *Ribes nigrum*, Saskatoon, and *Ribes* sp. Indian Head, Sask. $12-26 \times 5 \mu$.
- **Salicis** Westend. On leaves of cultivated *Salix*; Morden. $14-18 \times 5-8 \mu$.
- **spadiceum** Dearness & Baby (71: 133). On leaves of *Trifolium pratense*, Birds Hill. Spots dark-brown, elongate, usually passing inward from the edge of the leaf, often confluent, acervuli deep-seated, pushing up under the cuticle, amphigecous, spores $3-8 \times 1-2 \mu$, conidiophores $23-30 \times 1 \mu$. Common at Birds Hill found in 1927, 1928, and especially in 1935 by I. L. Connors and G. R. Baby, not found elsewhere. *G. concolorum* Kirch and *G. Trifolii* Peck have much larger spores.
- **Tremellinum** Sacc. On leaves of *Acer spicatum*, Victoria Beach. $4-8 \times 1\frac{1}{2}-3 \mu$.
- **venustum** Speg., stage of *Ellenos* (*Platostellia*) *venusta*. Rarely seen on *Rubus idaeus* var. *strigosus*, Hartney and Sidney.
- **sp.** On leaves of *Ficus elastica* in houses or greenhouses in Man. Spores $12-16 \times 4-6 \mu$.
- Libertella acerina** Westend. On bark of *Acer Negundo*, Univ. Spores c. $20 \times 1 \mu$, coating out in amber tendrils.
- **betulina** Desm. On branches of *Betula alba* var. *papyrifera*, Norway House and Victoria Beach. Spores $12-15 \times 1-2 \mu$, forming reddish masses on the white bark.
- Marcossonia Aquilegiae** Dearness (71: 134 as *Marcossonia*) On leaves of *Aquilegia* sp., Univ. Spores $10-17 \times 4-5 \mu$, 2-celled. Mr. W. B. Grove states (personal communication) that he considers this to be *Actinomyces Aquilegiae* Grove.

- Marasmius Castagnei* (Dunn. & Mort.) Magn. On leaves of *Populus balsamifera*, Univ.; Man., of *P. tremuloides*, Indian Head, Sask. Spores 13-20 \times 4-7 μ , with a septum near one end.
- *Martini* (Sacc. & Ell.) Magn. Common on leaves of *Quercus macrocarpa*, Carberry, Morden and Univ. Spots pale, spores 14-25 \times 3 μ .
- Potentillae* (Nees.) Magn., stage of *Diplosporium Karstii* (Ell. & Ev.) Wolf. On leaves of *Fraxinus glauca* Dana, Sask., of *F. spumosa*, Clear Lake, Man., of *F.* sp. (wild strawberry), Univ. Spores 30-36 \times 5-6 μ , guttulate, 2-celled.
- Sorchi* Dearness & Rusty (Mycologia, 20: 243 as *Marasmius*) Common on leaves of *Sorbus arbuscula*, Gladstone, Manitoba, Univ. and Winnipeg. Spots brown with purplish border; spores 10-13 \times 3-5 μ .
- sp. On *Sorbus* sp. Broadview, Sask. Spores 12-16 \times 6-7 μ , unequally 2-celled. Near *M. Kriegeriana* Brev.
- Melanconium cerasinum* Peck, probably. On branches of *Prunus* sp., Univ. A Valsa which was present with spores 24-32 \times 12-14 μ , 3-celled, brown.
- *parvulum* Dearness & Batholomew. On branches of *Betula alba* var. *papyrifera*, Victoria Beach. See also *Melanconia decorata*.
- Monochaetia Kriegeriana* Brev. On living leaves of *Epilobium angustifolium*, Roblin, coll. I. J. Connors. Spores 21-25 \times 4 μ , pale yellow, 4-celled with a seta at the end 8-10 μ long, and a similar pedicel.
- Mycosporium nitidum* Berk. & Curt. On twigs of *Cornus alternifolia*, Univ.
- Pestalotia blebsa* Dearness & Rusty (I 134). On twigs of *Salix humilifolia* (cult.) Univ. Spores 20-27 \times 4½-6 μ , 5-celled, pale brown and cells somewhat paler, apical cell with two equal divergent setae 10-20 μ long. A similar or possibly identical fungus also on twigs of *Quercus macrocarpa*.
- *insidiosa* Zahradnik. On outer bark of living *L. miss americana*, Univ. Spores 30-35 \times 8 μ , 8-celled, olive-brown, end cells paler, apical cell topped with one rather long seta, the basal cell with a similar pedicel. This is a *Monochaetia*.
- *penicillata* de Not. form *longistata* Dearness (I 135). Common on dead twigs of *Symphoricarpos canadensis* Univ. Spores 28-36 \times 9-10 μ , 5-celled, with three or four long setae. Henricke (Mycologia, 22: 161), described this as *Labeillea Cornu-cervi* n. gen. et sp.; see Fung. Dahuricus 663. It is associated with *Cryptospora baranovii*.
- sp. A *Pestalotia* occasionally found in soil in Man., and in roots of *Triticum* in Sask., has not been identified. Spores 18-22 \times 6-7 μ , 4-celled, brown with end cells pale, two or three terminal setae about as long as the spore.
- Septoglossum Apocyni* Peck. On leaves of *Apocynum androsaemum*, Valley River. Spores 26-34 \times 8-9 μ .
- Potentillae* Allsöcher. On leaves of *Potentilla palustris*, Norway House. Spores 36-44 \times 6-8 μ , 4-celled. These spores are rather wide for this species as described.
- *rhopaloides* Dearness & Rusty (Mycologia, 20: 243). Common on leaves of *Populus tremuloides*, Univ. Spores 40-60 \times 8-12 μ , commonly 3-celled, the middle cell 21-30 μ long.
- Steganothecium Fautouxi* Sacc. & Syd. On branches of *Betula alba* var. *papyrifera*, Victoria Beach. Spores brown, uniform, c. 48-52 \times 20 μ .
- Titanotheca detorsora* (Sacc.) Bubak (*Glossosporium Squasii* Ell. & Ev.). On *Equisetum hyemale*, Oakville, Man., on *Equisetum* sp., Macdowell, Sask. Spores 35-50 \times 3 μ .

SPHAEROPSIDALES

- Ascochyta Compositarum* J. J. Davis. On leaves of *Habenaria tuberosa*, Univ. 10-15 \times 3-4 μ .
- *graminiscola* Sacc. On *Agropyron Smithii*, *Hieracium adonae* and *Glyceria* (*Panicularia*) *gracilis* in Man., on *H. adonae*, Northern and Vonda, Sask. Spores 15-20 \times 3-4 μ , sometimes (perhaps in different varieties of the fungus) up to 30 or even 40 μ long.
- *infuscaria* Ell. & Ev. On leaves of *Ranunculus abortivus*, Brandon. 13-17 \times 4-5 μ .
- Medicaginis* Brev. On *Medicago sativa*, Univ., Man., Fort Qu'Appelle, Indian Head and Saskatoon, Sask. The spores in the Man. specimen were rather small, 10-14 \times 4-6 μ . Some authors refer this and *A. Meliloti* to the pyrenoid stage of *Mycosphaerella lachetii* Steen. See *Stigmonospora Meliloti*.

- Ascochyta parasitica* Fager** On living stems of *Alnus incana*, Univ. 9-12 \times 3-4 μ .
- **Flad Lib.** On leaves of *Picea canadensis*, Winnipeg, Man., Southern and Saskatoon, Sask. Specimens of pine seed sent in from Winnipeg because of discoloration produced *A. Pice* in a damp chamber.
- **Blad Ell & Ev.** On leaves of *Ribes Rhaponticum*, Lydiatt and Univ., Man., Indian Head and Saskatoon, Sask. 11-16 (20) \times 3-5 μ .
- **Sporothecium Bacc & Roum.** On leaves of *Carex flacca*, Vivian. 10-14 \times 3 μ .
- **Thapsi Ell & Ev.** On stems of *Zinnia laurina*, Univ. Spores 23-26 \times 6-7 μ , 2-celled, 4-guttulate, with indications of becoming 4-angled and therefore a *Stagonospora*.
- **Violae Lib.** On leaves and pods of *Vicia villosa*, Univ. Spores 12-17 \times 4-5 μ , probably a form of *A. Pici*.
- Asteromys Canadensis* Auct. Amer.** On *Geniana Androsani*, Univ. Spores globose or broadly elliptic. Davis (Trans. Wis. Acad. Sci. 24 1880) reports that Petrak suggests that this fungus should be called *Asteromella Androsani*.
- Heterophyllum populicola* Harst.** On bark of *Populus tremuloides*, Univ. Pyrenia black, erumpent through the bark usually in clusters, oval, spores 3-4 \times 1 μ .
- Brenckia Steyerinckii* (Ell. & Ev.) Petrak** [*Asteromys* Ell. & Ev.] On stems and leaves of *Sieversia angustifolia*, Brandon. Spores 18-25 \times 2-5 μ , pale brown, 2-celled, prolonged into an awn at one end.
- Canthareporium Amorphae* Bacc.** On twigs of *Amorpha fruticosa*, Univ. Spores brown, 20-30 \times 9-12 μ , with 3 cross septa and often one longitudinal septum.
- ***Canthareporium* Harst.** On *Coronaria arborescens*, Univ. Man. and Indian Head, Sask. Spores 18-24 \times 8-12 μ , with commonly 3 cross septa, sometimes with one or rarely two longitudinal septa. Associated with *Cucurbitaria Canthareporii*.
- ***cruciatum* (Fueki) Bacc.** On twigs of *Linnaea americana*, Univ. Pyrenia in the bark, 100-170 μ wide, spores oval or globose, 6-9 \times 5-8 μ , with septation commonly cruciform, resulting in 4 cells. Recorded previously on *Linnaea* in Europe.
- **Tami P. Henr.** On dead water-sprouts of *Prunus pennsylvanica*, Univ. Spores 14-20 \times 6-8 μ . Further description in 71, 136.
- Myogonidia* Ell. & Ev.** On branches of *Asar Nagada*, Univ. Spores 10-16 \times 7-10 μ , septation variable, sometimes cruciform.
- ***umbellatum* Brenckle.** On twigs of *Symphoricarpos occidentalis*, Univ. Spores 12-16 \times 6-7 μ . Determined by Dr. Brenckle, who described the species from North Dakota (Mycologia, 22 1911) and has issued it as *Fungi Dakotenses*, 653.
- **sp.** On twigs of *Sambucus* sp., Saskatoon, Sask. Pyrenia separate, about 500 μ wide and 300 μ high, wall thick, spores 10-22 \times 10-14 μ , brown, mostly with 3 cross septa and one longitudinal septum. Distinct from *C. dichomeroides* Bacc.
- Catula sturgida* (Fr.) Dent.** On branches of *Corylus*, Univ. Spores 20-24 \times 8 μ , larger than described.
- Chaetomella atra* Fueki var. *ligulicola* Bacc.** On decorticated wood of *Fraxinus*, Winnipeg. Pyrenia black, becoming open at the top and capitate, surrounded by bristles, spore-mass gray; spores 11-13 \times 2 μ .
- Cleistanthus Capiti* de Bary.** On *Palaeophora Urymichia* on *Prunus* spp., Univ. and Valley River, Man. and Saskatoon, Sask.; on *Microphora*, Univ. Spores 4-6 \times 1½-2 μ (2½-3 \times 1 μ in Rabenhorst).
- Conothyrium Fuekii* Bacc.** stage of *Leptophloeis Conothyrium*. On *Rubus idaeus* var. *strigosus*, Univ. 2½-4 \times 2-3 μ .
- ***Teliosporium* Bacc.** On twigs of *Vitis vulpina*, Univ. 3-6 \times 2½-3½ μ .
- ***parasitica* (Berk. & Rav.) Tami.** On *Hypoxylon*, Univ. Blackish pyrenia abundant, spores 8-10 \times 4 μ .
- ***pyrenium* (Bacc.) Sheld.** On leaves of *Pyrus* sp., Morden, Man. and Indian Head, Sask. Spores 5-6 \times 2-3 μ , smoky in color, at least in mass.
- ***Tamaricella Oudem.*** On twigs of *Tamarix*, Univ. 5-7 \times 3-4 μ .
- Cryptosporopogon cornuta* (Petrak) Petrak & Syd.** On branches of *Cornus stolonifera*, Saskatoon, Sask.; of *C. stolonifera*, Univ., Man. 20-40 \times 10-16 μ .
- Cytospora ophiocoma* Bacc.** stage of *Valsa umbra*, s.s. On *Calcestrus scandens*, *Pyrus ioensis*, Saltz sp., etc.; Univ., Man., on *Prunus Baccart* and *Rosa* sp., Saskatoon, Sask. 6-10 \times 1½-2 μ .

- Cytospora annulata* Ell. & Ev. On twigs of *Acer Negundo*; Univ., Man. and Indian Head, Sask. 5-7 \times 1-1½ μ .
- *TCyprina* Fuckel. On twigs of *Salix*, Univ.
- *Chrysosporium* Fr. Common and apparently injurious on *Populus tremuloides* and *P. deltoides* in Man. and Sask., on *Salix pentandra* (*S. laurifolia*), Saskatoon, Sask. Spores \pm 4 \times 1 μ .
- *Leucostoma* Sacc. On diseased branches of *Prunus* sp., Morden, Man. and Saskatoon, Sask., on *Amelanchier alnifolia*, Saskatoon, Sask. See *Velar leucostoma*.
- *Symphoricarpi* Ell. & Barth. On twigs of *Symphoricarpos occidentalis*, Univ., Man.; det. Brunckle; Indian Head, Sask. 5-8 \times 2 μ .
- Darlucia filum* (Rev.-Bern.) Cest. On sort of various Uredinales in Man. Spores hyaline, apiculate, 2-celled, 12-17 \times 4-5 μ .
- Dilophospora Alopecuri* (Fr.) Fr. On *Hordeum vulgare*, Carlyle, Sask.; July 27, 1924, coll. P. M. Simmonds. This is the only record for the prairie provinces.
- Dinemasporium graminum* Lév. On old culms of grass, Univ. Pycnidia surrounded by setae, spores 12-16 \times 2-3 μ , continuous, with a long cilium at each end.
- *Robinsoniae* Gerard. Common on old branches, etc. of *Celastrus scandens*, *Fraxinus pennsylvanica*, *Populus* sp., *Tilia americana* and *Linus americanus*, Univ. and eastern Man. Spores 6-8 \times 2-3 μ , ciliate at the ends.
- Diplodia Amorphae* (Walbr.) Sacc. Common on branches of *Amorpha fruticosa*, Univ. Spores brown, 2-celled, 20-27 \times 9-11 μ .
- *Tatratia* (Desm.) Sacc. On branches of *Acer Negundo*, Univ. Spores golden-brown, 26-28 \times 10-11 μ .
- Humuli* Fuckel. On dead stems of *Humulus Lupulus*, Univ., May. Spores brown, \pm 20 \times 10 μ , 2-celled.
- Uromyces* Lév. On dead twigs of *Ulmus americana*, Univ., Man., May-June. 20-25 \times 9-10 μ . Possibly this species on wood of *Ulmus* sp., Saskatoon, Sask.
- *Pruni* Fuckel. On branches of *Prunus virginiana*, Univ., April. Spores 20-24 \times 10-12 μ .
- *sarcocenturum* Fr. On dead stems of *Menispermum canadense*, Univ., June. 21-26 \times 9-12 μ .
- *Zaeae* (Schw.) Lév. Rare on *Eoa Mays*, Univ., Man. and Saskatoon, Sask. Spores in the single Manitoba collection 24-30 \times 5 μ .
- Diplodina Elladi* Sacc. Not uncommon on dead stems of *Chenopodium album*, Univ. Spores 16-22 \times 7-9 μ , hyaline to yellowish, 2-celled. A form or species on old *Azaria canarioides* has spores 11-16 \times 5-6 μ .
- *Salicis* Wretford. On branches of *Salix*, Univ. 15-22 (25) \times 3-4 μ .
- Discosia arctocreas* (Tode) Fr. Not uncommon on old leaves of *Geum strictum*, *Populus*, *Quercus macrocarpa*, *Rubus triflorus*, and samaras of *Fraxinus pennsylvanica*, Berens River, Univ., Man., on overwintered leaves of *Rosa* sp., Saskatoon, Sask. The pycnidia are conspicuous, the spores resemble those of *Monochaetia*, and are 14-18 \times 2½-3 μ , 4-celled with a "cilium" at each end.
- Dothichiza Symphoricarpi* Rehm. On twigs of *Symphoricarpos*, Univ.; det. Brunckle. Spores 15-20 \times 3-4 μ , hyaline.
- Halimella borealis* Fl. & Ev. Reported by Connors (Can. Plant Disease Survey Report for 1934: 101) on *Colum boreale* from Dana, Sask.
- Haplosporalla diatrypoides* Ell. & Barth. On old deciduous wood, Univ., det. E. A. Burt as apparently this species.
- *Symphoricarpi* Peck, or a variety. On twigs of *Symphoricarpos occidentalis*, Univ., det. Brunckle. Spores 15-24 \times 5-11 μ , brown.
- Hendersonella arundinacea* (Desm.) Sacc. On old stems of *Phragmites communis*, Berens River. 25-40 \times 4-5 μ .
- *Mali* Thüm. On living leaves of *Amelanchier alnifolia*, Univ. Spores 12-15 \times 4-5 μ , brown, mostly 4-celled.
- Heteropetella Viburni* Desmisse & Buby (T. 137). On branches of *Viburnum Opulus*, Univ. Pycnidia superficial, dark brown, spores 3½-6 \times 2½ μ , hyaline, guttulate at each end.
- Leptotrompa Pinastris* Desm. On needles of *Pinus Banksiana*, Victoria Beach, Man. and Meadowall, Sask. 6-7 \times ½-1 μ .

- Leptothyrium nigrescens** (Desm.) Racc. On dead petioles of *Pteris nuda*, Selkirk and Univ. Spores $6.5 \times 1.2 \mu$, hyaline. One specimen showed a developing *Lophophanes* with young ascospores $10-12 \times 4 \mu$, hyaline, 2-celled.
- Macrophoma Salicis** Desmaz. & Barth. On twigs of *Salix*, Univ. $12-24 \times 7-9 \mu$.
- Mastrorhiza Friesii** Mont. On dead branches of *Ribes floribundum*, Univ. Pyrenidium superficial; ostiole becoming covered with masses of spores, spores $20-30 \times 3-4 \mu$, 4-celled with a gutta in each cell, hyaline. See *Myrothia*, 26, 266 and *Gedrea* *verrucosa*.
- Microdiplodia fauvelata** Allsch. On twigs of *Acer Negundo*, Univ. Spores brown, $8-11 \times 4 \mu$, 2-celled. Species of *Microdiplodia* are found on various hosts, the differentiation is often slight and if named it is usually by the name of the host.
- Micropera desmazieri** Liv. On branches of *Prunus Masson* and *P. nigra*, Univ. $20-64 \times 2-4 \mu$.
- Phaeospora Argemodii** (Desm.) Grove (*Septoria Argemodii* Desm.) On leaves of *Gomarium longistylis*, Carman, Univ. and Winnipeg. Grove (9) describes this fungus well. The pyrenidium wall is imperfect, spores $45-60 \times 3-4 \mu$. Main apothecia.
- *Ascomeris* Ell. & Kellerm. On leaves of *Amelanchier canadensis*, Bismarck and Dauphin, Man. and Humboldt. Spores $60-66 \times 4 \mu$ in the Sask. specimens.
- *canadensis* Bubak & Ivarson. On leaves of *Acer spicatum*, Victoria Beach. Spores $35-45 \times 2-3 \mu$, Gilman & Archer (5) make this name and names of others, synonymous with *Septoria Aceris* (Lib.) Berk. & Br.
- Phoma Astragalii** (Cooke & Hark.) On stems of *Astragalus pectinatus*, Sutherland, Sask. Spores $5.7 \times 2 \mu$, often with oil drops, but scarcely spindle-shaped as described.
- *tharboridensis* Sacc. & Syd. On twigs of *Berberis vulgaris*, Univ. $4.5 \times 2.3 \mu$.
- *Rutae* Frank. On rotted roots of *Ruta vulgaris* in storage, Univ.
- *destructiva* Plow. Racc. On fruits of *Lycopersicon esculentum*, Univ. destructive to a shipment of tomatoes reaching Winnipeg from Bermuda. Spores $4.8 \times 2.3 \mu$, continuous, but Grove (9) finds they become septate and that the fungus is *Ascochyta Lycopersici* Hrus.
- *elliptica* Peck. On stems of *Galeum officinale*, MacDonald and Saskatoon. Sask. furrows Ell. & Liv. On twigs of *Acer Negundo*, Univ. Spores $7 \times 3 \mu$.
- *herbarum* Westred. On flower stalk of *Rhus glabra*, Univ. $4.6 \times 2 \mu$.
- *holstenica* Gubers. Offshoot & Ivarson. Fifty-two isolations from butter, occasional in soil, in sandy eggs from yeast cakes which had developed pink spots. Cultures on agar produce abundant pyrenidia from which exude masses of flesh-colored spores, $4.7 \times 2.3 \mu$. This fungus was also isolated from the air over the ocean near Ireland (60).
- *Kingii* (Tode), Desm. Reported on *Brassica oleracea* var. *botrytis* and *capitata* in Man., but specimens have not been seen.
- *longistylis* (Pers.) Westred. Common in the spring on dead stems of *Amelanchier canadensis*, Univ. Man. and Midale, Sask. The fungus produces very long narrow black stripes on the stems, dotted with pyrenidia. The Sask. specimen bore spores $4.7 \times 2.4 \mu$, each usually with two guttae.
- *Menispermis* Peck. On stems of *Menispermum canadense*, Univ. Spores $7.9 \times 1.4 \mu$, and the fungus agrees with the type.
- *nubulosa* (Pers.) Mont. & Berk. On old stems of *Artemisia* sp. and *Lupinus canadensis*, Grand Beach and Univ. Spores $8-10 \times 2.4 \mu$, baggatoile. This composite species is doubtless common.
- *Trigonosticta* Thum. On stems of *Acer Negundo*, Univ.
- *Phaeospora* Allsch. On old stems of *Pinus strobus*, Univ. $8-10 \times 3.5 \mu$.
- *Pruni* Peck. On twigs of *Prunus fragrans*, Univ. $6-9 \times 2-2.4 \mu$. Grove (9) includes this with *Phaeospora Prunorum*.
- *Tharboridensis* Sacc. On twigs of *Berberis* sp., Indian Head, Sask. $6-10 \times 2-4 \mu$.
- *thermophilica* F. Hrus. On stems of *Thermopsis rhomboides*, Saskatoon.
- Phomastridium Ciferri** Fawcett. On grapefruit imported into Winnipeg, coll. J. E. Muehlenberg.
- Phyllactinia*** *abrupta* Ell. & Kellerm. On *Menispermum canadense*, Univ. Spores $3-4 \times 1 \mu$. Teben and Daniels, *Mycologia*, 19 (119) contend that this should be called *P. menispermicola*, and the *Septoria* on similar spots *S. abrupta*. Both may prove to be stages of the same fungus.

* All species of *Phyllactinia* and *Septoria* have reported without living leaves unless otherwise stated.

- Phyllosticta talthesicola* Pam. On spots on stems of *Alnus rosea*, Univ. Spots gray; pyrenoid wall thin, spores $5-7 \times 2 \mu$.
- *Antirrhini* Syd. On *Antirrhinum majus*, Univ. $4-6 \times 1\frac{1}{2}-2 \mu$.
- Berberidis* Rabenh. On *Berberis vulgaris*, Univ. Spots gray with purple border; spores $4-6 \times 2-3 \mu$.
- *Betes* Oudem. (no doubt the same fungus as *Phoma Betae*). Common on *Beta vulgaris*, Univ. Garden-beets, sugar-beets and mangels are affected, and sometimes injured.
- *Betulae* Ell & Ev. On *Betula alba* var. *papyrifera* in cultivation, Univ. $4-5 \times 1 \mu$.
- *brunnea* Dearn & Barth. On *Populus balsamifera*, along the Hudson Bay Railway, 332 miles from The Pas, coll. P. H. Gregory, Aug. 23, 1904. Agrees with *Fungi Columbiana*, 5040; spores $4-6 \times 1.2 \mu$. Probably this species, with spores $3-4 \times \frac{1}{2}-1 \mu$, on *Populus tremuloides*, Emma Lake, Sask.
- *Caricis* (Fuekel) Sacc. On *Carex fascicularis*, Norway House. $5-6 \times 2 \mu$.
- *circumscissae* Cooke. On *Prunus* sp. cult., Morden. Spots brown, gray in centre, sometimes falling out of the leaf; spores $4-6 \times 1\frac{1}{2}-2 \mu$.
- *Commensalis* Ell & Ev. On *Facelia* sp., Univ. Pyrenidia few, epiphyllous, spores $4-6 \times 2-4 \mu$.
- *Convallariae* Pers. On *Scilla maritima*, Univ., Vivian, Man.; probably this species on the same host at Indian Head and Morden, Sask. Gilman and Archer (8:433) consider this a phase of *Sphaeropsis cruciata*. $10-12 \times 8-9 \mu$.
- Cornu-canadensis* Dearness & Bishy (71:138). On *Cornus canadensis*, Victoria Beach. Spots 1.2 mm. wide, pyrenidia epiphyllous, c. 150μ wide; spores $3\frac{1}{2}-5 \times \frac{1}{2}-1 \mu$.
- cornuti* Ell & Kellerm. On *Aedon sp.*, Univ. Spores $3-4 \times 1 \mu$, *Ceroaspora foliosa* is present on the same leaves, the *Phyllosticta* may be a microconidial stage.
- *Crataegi* (Cooke) Sacc. On *Crataegus* sp.; Univ. $8-4 \times 1\frac{1}{2}$.
- *Decursiva* Sacc. On *Rubus triflorus*, Victoria Beach. $4-6 \times 1\frac{1}{2} \mu$.
- *decidua* Ell & Kellerm. On *Saururus ciliatum*, Univ., on *Cean. strichum*, Berens River. $4-6 \times 1\frac{1}{2}-2\frac{1}{2} \mu$.
- *Dianthi* Westend. On *Lychnis fockensiana*, Brandon, Univ., Man. and Indian Head, Sask. Spots more or less circular, up to 2 cm. wide, palid brown, border dark, often concentrically marked, pyrenidia epiphyllous, $100-150 \mu$ wide, wall thin, spores ellipsoid, eguttulate, $6-12 \times 3-5 \mu$. Some of the spores (in the Sask. material) show a very slight tendency to become narrower at the centre, and the fungus perhaps becomes *Ascochyta Dianthi* Berk. (see Genre. 9). The specimens seem to fit the account of *P. Lychnidis* in Gilman and Archer (8:374).
- *Draccephalum* Dearness & Bishy. *Mycologia*, 18:252. Common on *Draccephalum parviflorum*, Fisher Branch, Killarney, Lydell, Roblin and Univ. $7-13 \times 3\frac{1}{2}-4\frac{1}{2} \mu$.
- *fatiscens* Peck. On *Nyssa sylvatica*, Norway House. Spots 1.2 cm., spores $7-10 \times 2\frac{1}{2}-4 \mu$.
- *Heraclei* Ell & Dearn. On *Heracleum lanatum*, Dauphin. Agrees with *Fungi Columb.* 3774. $4-6 \times 2 \mu$.
- *hibiscina* Ell & Ev. On *Hibiscus esculentus*, Morden. $4-8 \times 2 \mu$.
- *hiipida* Ell & Dearness. On *Smilax herbacea*, Univ. Spots indefinite; spores $3-4 \times 1 \mu$.
- *innumeralis* Peck. On *Amodendrum alnifolia* across Man. and Sask. The brown spots become covered below with pyrenidia, spores $6-8 \times 1\frac{1}{2}-2 \mu$.
- *Intermixta* Sacc. On *Populus* sp., Univ., det. J. J. Davis.
- *leucola* Ell & Ev. On *Jun. canadensis*, Dauphin, Univ. The spots are as described, but the spores attain a larger size, being $4-10 \times 2-3 \mu$.
- *Lappae* Sacc. On *Archium flappe*, Univ. $6-8 \times 3 \mu$.
- *Lactaginis* Sacc & Syd. On *Viburnum pubescens*, Univ. $4-6 \times 2-3 \mu$.
- *livida* Ell & Ev. On *Quercus macrocarpa*, Univ.; det. J. J. Davis.
- *Lychnidis* (Kunze & Schmidt) Ell & Ev. On *Lychnis* sp. cult.; Indian Head, Sask.
- *minima* (Berk. & Curt.) Ell & Ev. On *Acer spicatum*, Mizaki, Victoria Beach. Spores mostly $6 \times 2 \mu$.
- *minutissima* Ell & Ev. On *Acer spicatum*, Mizaki. $2-3\frac{1}{2} \times \frac{1}{2}-1 \mu$.
- *Nagrandinis* Sacc. & Speng. On *Acer Nagrande*, Univ. $8-9 \times 3-4 \mu$.

- Phyllotelia Petasidicola** Ell & Ev. On *Petasites agnitivus*, Clear Lake. Spots subcircular, whitish, marked with concentric darker lines, border marked also with a dark brown zone 1-2 mm. wide, pyrenia few, apophyses; spores 5-7 \times 2-3 μ .
- **phumiformis** Bacc. On *Quercus macrocarpa*, Carman, Univ., Victoria Beach. Spores large, minutely 14-22 \times 6-9 μ , but may reach 26 μ in length. This species has been placed in *Dothidea* and *Macrophoma*.
- **plantaginicola** Taton & Daurin. Common on *Plantago major*, Brandon, Daurin, Elm Creek, Macgregor and Univ. 8-14 \times 2-4 μ .
- **Plantaginula** Bacc. On *Plantago major*, Berens River. Spots 1-2 mm., circular, whitish, thin and translucent, border darker, pyrenia amphigynous, 80-100 μ , spores 4-6 \times 2-2½ μ , subcylindric, with a small gutta near each end.
- **rhodola** Ell & Ev. On *Rhus Toxicodendron*, Victoria Beach. Spores 4-6 \times 2 μ , often with a gutta at each end of the spore. Little of it was found.
- **Rudbeckiae** Ell & Ev. On *Rudbeckia lactinea*, Dauphin. Spores 5-10 \times 2½-3 μ , straight or somewhat curved.
- **spermoides** Peck. On *Isis vulpina* and apparently this species on *Colostrium scandens*, Univ. Spores 3-5 \times 1 μ , cylindrical with obtuse ends.
- **stramineola** Bacc. On *Rhus glabra*, Brandon, Univ. 10-20 \times 4-6 μ .
- **Symphoricarpi** Westw. On *Symphoricarpos* sp., ?Maroon, Bask.
- **Thlas Bacc. & Sparg.** On *Faba escuriana*, Univ. 3-7 \times 2-3 μ .
- **verhucicola** Martin. On *Verbena hastata*, Berens River. Spots small, 1-1 mm. wide, pulled, thin and translucent, with a reddish-purple raised border, pyrenia few, amphigynous, 80-140 μ , spores 5-8 \times 2-3 μ . Described on *V. hastata* in New Jersey recorded by Davis (Trans. Wisconsin Acad. Sci. 21: 295) on *V. stricta* in Wisconsin.
- **Violeta** Durr. On *Isis canadensis* and *V.* sp., Gilbert Plains, Killarney and Univ. Spores 4-6 \times 2-3 μ , hyaline, but somewhat brownish in mass.
- **viridis** Ell & Kellerm. On *Fraxinus pennsylvanica* var. *lanceolata*, Lacombe, Bask., on *F. pennsylvanica*, Univ. Man. Gilman & Arthur (8: 232) combine *F. viridis*, *Piggottia Fraxini*, *Septoria Brueya* and other names under *Cyathosporium Fraxini* (Fr. & Kell.) Ell. & Ev.
- **virginiana** (Ell. & Harkn.) Taton. On *Fraxinus virginiana*, Univ. Spores 6-8 \times 1-1½ μ . The spots and spores are very similar to those of *F. canadensis*.
- **viticola** (Berk. & Curt.) Thüm., stage of *Gaeumannia*. On *Vitis rotundifolia*, Kenora. Spores \approx 10 \times 6 μ .
- Piggottia Fraxini** Berk. & Curt. On leaves of *Fraxinus campestris*, Saskatoon and Sutherland, Bask., of *F. pennsylvanica* var. *lanceolata*, Indian Head and Lacombe, Bask., common on *F. pennsylvanica*; Univ., Man. See *Phyllotelia viridis* above.
- **Nagandicola** Ell & Daurin. On leaves of *Acer glabrum*; Saskatoon, Bask., very abundant on Indian leaves of *Acer Nagandi* in October, Univ., Man. Possibly related to *Septoria Nagandicola*.
- Phomastris punctiformis** (Frick) Bacc., stage of *Paraspeckia repanda* q. On leaves of *Galeum boreale*, Dunn, Bask. spores \approx 6 \times 1½ μ , on *G. triflorum*, Berda Hill and Univ., Man.
- Phomastris Meliloti** Daurin & Sanford. On *Ailanthus rosea*, Regina, Bask., on *Melilotus alba*, Saskatoon and Neust. Bask. This fungus was described (Ann. Mycol. 28: 224) from Alberta, where an unginous brown root rot of sweet clover is produced by this fungus. It has not yet been found in Manitoba.
- Pyrenochaeta crysoglyphoides** Bacc. On stems of *Cynodon dactylon*, Univ. Pyrenia \approx 150 μ in diameter, the outer surrounded with setae up to 150 \times 5 μ , spores 4-6 \times 2 μ .
- Rhabdochaeta rugosa** Syd. On dead stems of *Helictotrichum sempervirens*, Indian Head, Bask. Spores hyaline, without septa or guttae, 15-30 \times 2 μ .
- **Solidaginis** (Coker & Ell) Bacc. On stems and insect galls of *Solidago* sp., Univ., Man., Indian Head and Midale, Bask. 22-38 \times 2-3 μ .
- **subgrisea** Peck. On stems of *Solidago* sp., Univ. Stem colored gray, spores up to 70 \times 2 μ .
- **Viburni-Opuli** Daurin & Babry (71: 140). On twigs of *Viburnum Opulus*, Univ. 30-80 \times 1-1½ μ . Associated with *Dilysella manitobensis*, q.
- **Symphoricarpi**. The name inadvertently listed on p. 160 of "The Fungi of Manitoba," is a *nomen nudum*. The fungus on the twigs of *Symphoricarpos occidentalis*, Univ., has orange-brown black pyrenia with obtuse, short setae, spores 30-60 \times 2 μ .

- Septoria Agropyri* Ell. & Ev. On *Agropyron Richardsonii*; Roblin, Man.; on *A. Smithii*; St. Norbert, Man. and Broadview, Sask., on *A. amurum*; Morden, Man., Margo and Saskatoon, Sask. 32-52 \times 2-3 μ .
- *alnifolia* Ell. & Ev. On *Alnus incana*, Birds Hill to Norway House and Valley River 40-66 \times 2-3 μ .
- *Anemones* Desm. On *Anemone canadensis*, Brandon 15-35 \times 1-2 μ .
- *Apil* (Br. & Cav.) Chester On *Apium graveolens*, Morden and Winnipeg. Spots large, with few pycnidia.
- *Apil-graveolentia* Dorogin. On leaves and petioles of *Apium graveolens*, Miami and Univ. Spots small, densely covered with pycnidia. Cochran (Phytopath. 21 (115)) considers this and *S. Apis* to be distinct. Both cause considerable injury, unless thorough spraying is practised.
- *Argophylla* Ell. & Kellerm. On *Psoralea argophylla*; Brandon. Spores up to 70-90 \times 4 μ ; the original description gives spores 40-55 \times 2½-3½ μ .
- *Astragalii* Rob. & Desm. On *Lathyrus maritimus*, Berens River, Man.; on *L. ochroleucus*, Fisher Branch, Man., Lake Waskesiu and St. Gregor, Sask., on *L. senensis*, across Man. and at Nacum, Sask. All these collections have similar conspicuous, irregular spots on the leaves, but the spores in some specimens are only 40-70 μ long, in others they reach 200 μ . The spores are rather irregular, 2-4 μ wide.
- *atropurpurea* Peck. On *Aster cordifolius*, *A. laevis*, *A. Lindleyanus*, *A. nobilifolius*, *A. lateralis* and *A. sp.*, Berens River and across southern Man. Spots often purplish, spores 50-110 \times 2-4 μ .
- *aurea* Ell. & Ev. On *Rhus aurea*, Univ., Man. (det. J. J. Davis), Indian Head, Sask.
- *Avenae* Frank, stage of *Lepidosphaeria avenaria*. On *Avena sativa*, Brandon, Man. and Saskatoon, Sask. 20-41 \times 3-4 μ .
- *baillii* Wint. On *Arctostaphylos uva-ursi*, Oakville and Univ. 24-48 \times 1½-2 μ .
- *Basseyi* Peck. On *Fraxinus pennsylvanica*, Estlin and Univ. 35-50 \times 4-5 μ . See *Phyllosticta viridis*.
- *Betulae* Peck. On *Betula alba* var. *papyrifera*, Kenora. 50-65 \times 4 μ .
- *Beycei* Dearness. On seedlings of *Betula alba* var. *papyrifera* in a nursery, Dropmore. Spots reddish brown above irregular, pycnidia epiphyllous; spores septate, 80-68 \times 2 μ .
- *Bromi* Sacc. Not common on *Bromus inermis*, Napanka, Man. and Indian Head, Sask. The specimens were found by I. I. Connors to have spores 24-64 \times 2 μ , mostly 4-celled; the spores are usually small, gray with dark margin, dotted by conspicuous pycnidia 80-200 μ long.
- *brevigera* Sacc. Common on *Bromus inermis*, across southern Man. and at Saskatoon, Swift Current and Vonda, Sask., on *Elymus Nacumensis*, Margo, Sask. Mr. Connors found the spots on *Bromus* to be cotyledonous, brown, pycnidia 105-125 \times 90-150 μ , subterminal; spores falcate, acute, granular 19-3. \times 2½-3½ μ . The type was collected in North Dakota; see Breckle, Fungi Dakotenses, 319.
- *Brunellae* Ell. & Halkey. On *Prunella vulgaris*, Vivian. 45-70 \times 2 μ .
- *Callistephi* Glycer. On *Callistephus ciliolata*, Brandon and Morden. Spores in one specimen 62-52 \times 2-2½ μ .
- *Campanulae* (Lév.) Sacc. On *Campanula sparinoides*, Victoria Beach. 30-40 \times 2 μ .
- *canadensis* Peck. On *Cornus canadensis*, Victoria Beach. 25-40 \times 1 μ .
- *Cannabis* (Leach.) Sacc. On *Cannabis* sp.; Morden. 25-40 \times 1½ μ .
- *Caraganae* (Jacz.) Decker. On *Caragana suberosa*, Indian Head, Sask. and Univ., Man., on *C. sp.* cult., Indian Head, Estlin and Saskatoon, Sask. The affected leaves drop prematurely. This fungus was first found in western Canada by W. F. Fraser at Saskatoon and by B. J. Rolfs at Indian Head in 1928, but was not seen in Man. until 1931, when it was conspicuous at the Univ., and it has persisted. Spores indefinite, brownish, pycnidia hypophyllous, c. 200 μ wide when mature; the spores were as milky-white clotted, 84-68 \times 3-4 μ , becoming septate.
- *Caricis* Pass. On *Carica frencaria*, Norway House. 35-40 \times 2-3 μ .
- *chrysanthemella* Sacc. On *Chrysanthemum maximum*; Morden and Univ. 40-70 (60) \times 2-3 μ . Grove (9) includes this with *P. Chrysanthemi* Allmsh.

- Septoria Crevill. Nienl.** On *Cirsium arvense*, Southern Man. and at Indian Head, Sask. 50-80 \times 2½-3 μ .
- **Clematidis Rob. & Desm.** On *Clematis ligusticifolia*, Morden, Man., on *C. sp.*; Indian Head and Rosthern, Sask. Spores 30-75 \times 2-3 μ , often narrower at one end. This may be *S. Jacksoni* Ell. & Ev.
- **consocium Ell. & Martin.** Common on *Silene acaulis*, Dauphin to Berens River and Univ., Man.; Indian Head, Sask. 32-54 \times 1-2 μ .
- **Convolvuli Desm.** On *Convolvulus arvensis*, Saskatoon, Sask., on *C. sepium*, Univ., Man. 35-55 \times 1½-2 μ .
- **Coptidis Berk. & Curt.** On *Coptis triflora*, Victoria Beach. 18-22 \times 1 μ .
- **cornicola Desm.** On *Cornus canadensis*, Chamberlain, Sask., on *C. stolonifera*, Dauphin and St. Adolphe, Man. 22-55 \times 2½-3 μ .
- **corylina Peck.** Common on *Corylus americana* across Man. Pyrenidia in small circular or linear groups, spores 30-50 \times 2-3 μ .
- **Cucurbitacearum Sacc.** On *Cucumis Melo*, Univ. 20-30 \times 3-4 μ .
- **Diervillae Ell. & Ev.** On *Diervilla lonicera*; Minaki. 35-45 \times 1-1½ μ .
- **divaricata Ell. & Ev.** On *Palear Drummondii*, Brandon and Univ. The leaf-spot is sometimes injurious. 16-28 \times 1½ μ .
- **Dracaecephali Thüm.** On *Dracaecephalum pumilum*, Red Jacket, Sask. 50-70 \times 2-2½ μ .
- **Eriogonon Sacc. (S. Eriogoni Peck).** On *Eriogonum canadense*, Brandon and Carberry. 40-60 \times 1½ μ .
- **Flagellaris Ell. & Ev.** On *Convolvulus sepium*, Homewood, Univ. Spores long, 45-90 \times 2-3 μ . *S. flagellaris* was described as having spores 35-44 μ long, and according to Grove (9) is a synonym of *S. Convolvuli*.
- **flagellifera Ell. & Ev.** On *Pisum sativum*, Univ., Man., Saskatoon, Sask. This species, apparently northern, has spores 78-150 \times 2½-3 μ .
- **Galeospathiae Westend.** On *Galeospatha trichia*, Norway House, Swan River. 25-44 \times 1½ μ .
- **Giliae Dearness & Baby (Ti. 141).** On *Gilia hirsuta*, Reston, W. I. Gordon. Spots brown, extensive. pyrenidia epiphyllous, 150-225 μ , ostiole up to 30 μ wide, spores continuous, 45-70 \times 2-3 μ .
- **Glycyrrhizae Ell. & Kellerm.** On *Glycyrrhiza lepidota*, Lumsden, Sask., det. I. Connors who reports that this is evidently the first Canadian record.
- **Helentis Ell. & Ev.** On *Helianthus autumnalis*, Univ. 35-50 \times 2-2½ μ .
- **Heliopsis Ell. & Kellerm.** On *Heliopsis scabra*, Morden, Man. and Rosthern, Sask.; on *H. majoriflora*, Univ., Man., on *H. petiolaris* and *H. tuberosa*, Dauphin, Man. 50-85 \times 2-3 μ .
- **increscens Peck.** On *Friensalis americana* (*F. borealis*), Berens River southeastward. 20-34 \times 1-1½ μ .
- **Lapparum Sacc.** On *Archium minus* and *A. Lappa*, Univ. 19-27 \times 1-1½ μ .
- **Lepididictae Ell. & Martin.** On *Lepidium apetalum*, Morden.
- **Liatridis Ell. & Davis.** On *Liatris aspera* (*L. scariosa*), Rida H.H. 60-70 \times 2½-3 μ .
- **Lychnidis Desm.** On *Lychnis chloridacea*, *L. Hausskn.* and *Silene noctiflora*, Morden and Univ. Spores up to 70 \times 3 μ , often with one septum. The fungus seems to fit Grove's (9) description. The spores are too long for *S. noctiflorae* Ell. & Kellerm.
- **Lycopodioid Sparg.** Often injurious to *Lycopodium complanatum* in southern Man. 50-100 \times 3 μ .
- **malvacea Ell. & Martin.** On *Althaea rosea* and *Malva rotundifolia*, Morden and Univ. 34-66 \times 1½-3 μ .
- **menthicola Sacc. & Letend.** On *Mentha glabrior*, Brandon, Univ. and Victoria Beach, Man., Prod'homme, Sask. Spores 30-40 \times 1½-2 μ . Grove (9) considers this synonymous with *S. Menthae* (Tszm.) Oudem., others consider the latter to be a species with longer spores.
- **Mesomphthis (Lib.) Desm.** On *Mesomphthis trifoliata*; Gosh, Man. Spores immature, 15-25 \times 1½-2 μ . This or a similar fungus was collected in a quantity at Clear Lake, but it too was unsatisfactory, and the fungus did not develop further in a moist chamber. Similar specimens were found at Pike Lake, Sask. Infected leaves, overwintered under natural conditions, probably would bear a mature stage.

- Septoria Mimmitt Ell. & Kellerm.** On *Niraxus ringens* on the shores of Lake Winnipeg. Spots sometimes indefinite, sometimes with a definite darker border, spores 25-50 \times 1½ μ .
- **musiva** Peck. Common on *Populus balsamifera* and cultivated hybrids such as "*P. Pateskyana*" across Manitoba. Det. in part by J. J. Davis, who considers this a composite species. Spores about 40-65 \times 3-4 μ . See *S. populiicola*.
- **Nabellii** Berk. & Curt. On *Prinosideris alba*, Berens River and Woodfield. 20-30 \times 1-2 μ .
- **marisiana** Sacc. On *Scirpus frutescens*, Lake Dauphin. 40-50 \times 4 μ .
- **vesiculosus** Rostr. On *Calamagrostis canadensis*, Carman coll. J. H. Craigie. 10-14 \times 1-1½ μ .
- **Negundinis** Ell. & Ev. On *Acer Negundo*, Stonewall and Univ., Man., Indian Head, Sask.; on *A. inferius* Indian Head and Saskatoon, Sask. 32-50 \times 2½-3 μ .
- **nodorum** Berk. Common on leaves and glumes of *Triticum aestivum* in Man. and Sask. Conspicuous and sometimes numerous in wet years. 15-35 \times 3-4 μ .
- **Oenotherae** Westend. On *Oenothera biennis*, Clear Lake to Robt., Man. and at Bethune, Sask. 25-35 \times 1½-2 μ .
- **Paeoniae** Westend. On *Paeonia albiflora*, Morden, Portage la Prairie and Univ., Man., Indian Head, Sask. Spores 24-32 \times 2-3½ μ . Grove (9) considers that var. *berolinensis* Allesch. "seems to differ from the type only in having concentric foldings in the leaf spot," a character scarcely shown by the specimens in Man.
- **Passerinii** Sacc. On *Hordium jubatum* and *H. vulgare* across Man., on *H. vulgare* at Saskatoon, Sask. 22-52 \times 2-3 μ .
- **pentstemoniicola** Ell. & Ev. On *Pentstemon acuminatus*, Brandon. Spots indefinite; pyrenidia 50-100 μ with an incomplete wall, spores 30-75 \times 2-3 μ .
- Phylostegiae** Ell. & Ev. On *Phylostegia virginiana*, Winnipeg Beach. 20-30 \times 1-1½ μ .
- Pisal** Westend. On *Pisum sativum*, Brandon and Morden, Man., Indian Head and Swift Current, Sask. Spores 30-50 \times 2-4 μ , much shorter, and the spots less definite, than in *S. flagellifera*.
- plantaginis** Pass. var. **Plantaginis-majusculae** Sacc. On *Plantago major*, Oakville and Univ. Spores 28-35 \times 1-2 μ , smaller than in *S. plantaginis*.
- **Polygonorum** Desm. On *Polygonum Fennosc.* Gilbert Plants to Kenora.
- **populiicola** Peck. On *Populus nigra*folia, Indian Head, Sask., on *P. balsamifera*, eastern Man., Lac Vert and Saskatoon, Sask. The various species of *Septoria* recorded on *Populus* are scarcely distinguishable. 55-84 \times 1½-4 μ .
- **psammophila** Sacc. On *Astragalus pectinatus*, Sutherland, Sask.
- **pulsatillae** Ell. & Martin. On *Gahum boreale*, Univ.; on *G. triflorum*, Clear Lake. 40-60 \times 2-3 μ .
- **Ribes** Desm., stage of *Mycosphaerella Grossulariae* (Fr.) Lodau. Common on *Ribes floricolum*, *R. Grossularia*, *R. nigrum* and *R. vulgare* in Man. and Sask. This fungus sometimes causes deformation.
- **Rubi** Westend. On *Rubus idaeus* var. *oblongus* across Man., on *R. melanocentrus*, Beaver Creek, Sask., on *R. triflorus*, Vivian Man. Not found to be injurious.
- **Rudbeckiae** Ell. & Halsted. On *Rudbeckia laciniata*, Dauphin, Oakville and Valley River. 44-56 \times 1½-2 μ .
- **salicina** Peck. On *Salix* sp., Norway House. Immature.
- **sambucina** Peck. On *Sambucus racemosa*, Morden and Portage la Prairie. Spores 40-70 \times 3 μ , septate.
- **Scutellariae** Thüm. On *Scutellaria lateriflora*, Kenora. 40-70 \times 1-1½ μ .
- **Sesuvii** Frib. & Delacr. On *Sesuv. coccineum*, Univ., Man. and Saskatoon, Sask. 30-40 \times 3 μ .
- **Shepherdiae** (Sacc.) Desmaz. On *Shepherdia canadensis*, Birds H.H. The pyrenidium wall is sometimes obsolete, spores 25-50 \times 2½-4 μ , multiseptate.
- Sleyi** Peck. On *Echinocystis lobata*, Morris, Sifton and Univ., det. J. J. Davis, who considers *S. Breckin* Sacc. to be a synonym.
- **Sil** Rob. & Desm. On leaves and stems of *Stium newfoundlandum*, Oakville and Victoria Beach. Spores 30-45 \times 1½-2 μ , on the stems they were found to reach 60 μ .
- **solidaginicola** Peck. On *Solidago rigida* and *S. serotina*, Univ. 40-65 \times 2 μ .
- **Sonchii-arvensis** Dearness & Buby (Mycologia, 20: 238). Common on *Sonchus arvensis*; type collected at Univ., found also at Minaki, Victoria Beach, Man., and Quill Lake, Sask. Spores 30-50 μ long, commonly 2½ μ wide at one end, 1½ μ at the other.

- Septoria uncinifolia** Cooke Rare on *Ranunculus arvensis*, Univ. Spores only about $20\ \mu$ long.
- **Stenobylis** Rob. & Doon. On *Saxifraga pubescens*, Boreas River and Univ. Spores $20-30 \times 1-2\ \mu$, in one collection they reached $80\ \mu$ in length.
- **Stellariaea** Rob. & Doon. On *Stellaria media*, Minn. $55-60 \times 1\frac{1}{2}\ \mu$.
- **Synpharisma** Ell. & Ev. On *Synpharisma occidentalis*, arvens. Man. and at Indian Head, Inventory and Saskatchewan Park. Distributed by Breckin from North Dakota in Fungi Dakotensis, 372.
- **Thallitris** Ell. & Ev. On *Thallitrium* sp. Kenora. $50-60 \times 1\frac{1}{2}\ \mu$.
- **Tritia** Doon. Fairly common on *Trichum acutum* in Man. and Sask. $20-55 \times 1\frac{1}{2}-2\ \mu$.
- **Urticaea** Doon. & Rob. On *Laportea canadensis* and *L. rufa* parsha, Univ. $45-60 \times 1\frac{1}{2}\ \mu$.
- **Urticoides** Rob. On *Urtica longifolia* & *variegata*, Morden. $50-55 \times 1\frac{1}{2}\ \mu$.
- **Violaea** Wintend. On *Viola* sp. Killarney and Minn. $16-25 \times 40, \times 1\frac{1}{2}\ \mu$.
- **Xanthia** Doon. On *Xanthella* sp. *Laricina* and Lake Winnipeg on *S. commune* Winnipeg. Perithecia numerous and apothecia numerous about $20-55 \times 2\frac{1}{2}\ \mu$.
- **Xylotrich** Bore. & Wint. On *Lamium sphegocarpa*, Univ. Lake. Spores $45-60 \times 2\frac{1}{2}\ \mu$, larger than given for this species.
- Sphaeroglyphium nitensum** Doonum & House. Not uncommon in eastern Man. on fallen twigs of Prunus, Rubus, Salix, etc. The erect slender superficial pyrenia are white, spores $20-44 \times 2\frac{1}{2}\frac{3}{4}\ \mu$, narrowed at the ends, hyaline guttate becoming apiculate.
- Sphaeroneura prunorum** Peck. Common on branches of *Cornus alternifolia*, Univ. $16-22 \times 7\frac{1}{2}\ \mu$.
- **Taginella halckii**. One specimen from soil in Man. Pyrenia in culture with long "necks", spores $2\frac{1}{2}-3 \times 1\frac{1}{2}\ \mu$.
- Sphaeromastix Holwellii** Karst. On *Helvella infusa* and *H. spharagopora* Minn. and Victoria Park. Spores $8-11 \times 4\ \mu$, a re-examination shows that a few show indications of forming a septum, as Peck (12-154) found in specimens from Lake Huron. Mich.
- Sphaeropsis albicans** Ell. & Ev. Common on twigs of *Cory. Avicula*, *Tortuaria* and Univ. Man., Indian Head, Pike Lake and Saskatchewan Park, perhaps this species on *S. unciniformis*, Saskatchewan Park. This fungus appears to cause considerable "die back" of twigs or branches, they are whitened then may be darkened by masses of spores. $16-24 \times 10-12\ \mu$.
- **Amorphae** Ell. & Burth. On twigs of *Amorpha fruticosa*, Univ. $16-26 \times 9-11\ \mu$.
- **Coryli** Ell. & Ev. On branches of *Corylus* sp. Univ. $16-24 \times 10\ \mu$.
- **fertile** Peck. On twigs of *Fraxinus pennsylvanica*, Univ. Spores $22-30 \times 10-12\ \mu$.
- **Makurum** Peck. Stage of *Sphaeropsis albica* Nelson & Cooke. On branches of *Pyrus baccata* or other species of *Pyrus* cultivated in Man. and Sask. rare on leaves of apple. Probably this species also on branches of *Crataegus* sp. and *Prunus* sp. $16-20 \times 6-10\ \mu$.
- **Melanoparm** Peck. On stems of *Melanoparmia canadensis*, Univ. Winnipeg. $20-27 \times 9-11\ \mu$.
- **olivacea** Berk. On branches of *Falx americana*, Univ. associated with *Melanoparmia* (varieg.) (p. 4) of which Berk. regarded it the perithecial stage. Peck and Nyden have transferred it to *Melanconium*. Spores $20-30 \times 8-12 (14)\ \mu$.
- **Pyrenopeltis** (Ell.) Peck (*P. subultrina* Peck). On stems of *Crataegus canadensis*, Univ. $21-30 \times 9-11\ \mu$.
- **rhizoides** Cooke & Ell. On twigs of *Ribes arvensis* and *R. vulgare*, Univ. $18-26 \times 9-11\ \mu$.
- **Springae** Peck & Chast. On twigs of *Springa vulgaris*, Univ. $18-24 \times 10-12\ \mu$.
- **subultrina** Ell. & Ev. On twigs of *Falx americana*, Univ. Spores $20-27 \times 9-11\ \mu$, brown.
- **vittigena** Ell. & Ev. (perhaps the same as *S. subultrina* Bore.). On twigs of *Falx vulgaris*, Univ. $14-20 \times 7-11\ \mu$.
- **synata** Pinner (apparently). On twigs of *Lamium latifolium*, Univ., W. L. Gordon. $22-24 \times 10-11\ \mu$.
- Stagonospora albicans** J. J. Davis. On old leaves of *Carya fraxinea*, Norway House, verified by J. J. Davis. $55-65 \times 8-10\ \mu$.
- **Amorphae** Doonum & Baby (Mycologia, 20-225). On twigs of *Amorpha fruticosa*, Univ. $43-54 \times 4-6\ \mu$.
- **Astrigilia** (Wintend.) J. Lind. On leaves of *Chenopodium album*, *C. capitatum* and *C. hybridum* arvens. Man., on *C. album* at Indian Head, Sask.? Spores usually $16-22 \times 6\frac{1}{2}\ \mu$. In the specimen from Sask. they were $40-60 \times 3-4\ \mu$, this may be a distinct species not found to be described.

- Stagonospora Meliloti** (Lasch) Petrak (*Aecochyla Meliloti* (Trel.) J. J. Davis). Common on stems and leaves of *Melilotus alba* and *M. officinalis* across Man., on *M. alba* at Indian Head, Sask., probably this species on *Trifolium hybridum*, Watson and Saskatoon, Sask. This fungus sometimes causes severe injury to sweet clover. Gilman and Archer (8) include this and *Aecochyla Melnicowiae* under *Mycosphaerella lutealis* Stoebe; see also Horsfal, Cornell Univ. Memoir 130.
- **Petasisidia** Ell. & Ev. On leaves of *Potamogeton palmatus*, Clear Lake and Victoria Beach. Spores 30-55 \times 5-6 μ , hyaline, granular, becoming 3-4-celled.
- **Smilacina** (Ell. & Martin) Sacc. On leaves of *Smilax teretica*, Univ., det. J. J. Davis. Spores 13-22 \times 4-7 μ , becoming 3-5-celled and finally brownish.
- Wojnowicia graminis** (Mougeot) Sacc. & D. Sacc. On *Trisetum aestivum*, Humboldt and Senlac, Sask. Inoculations at Saskatoon proved it to be a weak parasite of *Bromus pumilus*, *Hordeum vulgare* and *Triticum aestivum*.

DERMATOPHYTES

- Achorion Schoenleinii** (Taubert) Remax. Isolated from five cases of favus capitis of immigrants. Apparently does not spread in Man.
- **violaceum** Bloch. Isolated from four members of one family of immigrants from Poland with tinea capitis. Does not appear to have spread in Man.
- Endomyces albicans** (Vahl.) Decker. Occasional on man in Man.
- Epidermophyton cruris** A. Cast. From five cases of ringworm of the epidermis of man.
- Microsporum Audouinii** Gruby. From 54 cases of tinea of children in Man.
- **felinum** Fox & Blaxter. Isolated from 49 children in Man., also present on cats and dogs, from which children often contract infection.
- **pubescens** Sabour. Also common on children in Man., and considered only a variety of the preceding (see 116).
- Pityriopsis Malassezi** Sabour. In scales from the scalp of nearly every adult patient examined in Man.
- Trichophyton album** Sabour. Relatively common on man in Man.
- **gypseum** Rod. n. Ten records, all from rural districts in Man.
- **interdigitale** Priestley. From cases of ringworm of the feet of man in Man.

XVI. APPENDIX

The following records have been added during 1937. Dr. Gordon's accurate list of species of *Fusarium*, verified by Drs. Wollenweber and Sherbakoff, now totals 26 distinct species and 46 entries, including varieties and forms. The corresponding figures for the world in Wollenweber and Reinking are 85 and 143. This means that 40% of the species recorded for the world, and 32% of all forms, etc. are known in Man. and Sask. This is a striking example of the wide distribution of fungi.

- Mycosphaerella Tassiana** (de Not.) Johans. On *Scirpus solidus*, Pike Lake, Sask.
- Thecaphora cuneata** (Sacc.) G. P. Clinton. A smut on *Gnedeia sparsa*, presumably this species, as reported for Man. by T. Johnson.
- Fomes Ellipticus** F. W. Anderson. On *Shepherdia argentea*, Saskatoon, Sask.
- **roseus** (Alb. & Schw.) Cooke. On conifer, Keewatin, western Ont., Sept. 1932, coll. M. Timonin. Reported by Dr. Mounce and Miss Macrae (Can. J. Research, 15, C 154-161, 1937).
- Geaster asper** (Mich.) Lloyd. On the ground, Indian Head, Sask.
- Lycoperdon pusillum** Batsch. On soil in a wheat field, Moosester, Sask.
- Cadophora festigata** Lagerb. & Melin. From soil in Man.; common. J. E. Michalek.
- **Mellini** Nannf. In soil in Man.
- Candida variabilis** (Lindner) Berk. In soil in Man.
- Dematiium pullulans** de Bary. Fungi of this type (*Pseudaria* spp.) on soil in Man.
- Fusarium angustum** Sherb. From basal parts of *Hordeum vulgare* and soil in Man.
- **concolor** Reinking. From soil at Indian Head, Sask.

Fusarium conglutinans Wollenw. var. *Betas* Stewart. In basal parts of cereals and in soil in Man.

— *lactis* Pir. & Rab. From basal parts of wheat and soil at Winnipeg, first recorded on cereals.

sambucinum Fockel form 1 Wollenw. From soil, Winnipeg.

Scirpi Lamb. & Faust. var. *eospectum* Wollenw. From wheat in Man.

Scirpi var. *caudatum* Wollenw. In soil in Man.

Oldiodendron griseum Robak. In soil in Man.

Streptothrix Mounseese Sumstine (Mycologia, 29: 240). On bark, Kenora.

Phoma glomerata (Corda) Wollenw. & Hochspfel. In soil in Man.

Septoria Commensal Ell. & Ev. On *Cirsium* in Man.

XVI HOST INDEX

Fungi listed directly under a host are apparently parasites, and usually are found on living leaves, stems, etc. In many cases there follows a list under subheadings as follows. "twigs," referring usually to dead but not decorticated smaller branches of trees or larger shrubs. The fungi were doubtless in some cases parasitic at first. "Branches" is used generally to cover dead woody parts of shrubs. "Bark" refers to that of logs, stumps, or larger branches, the fungi recorded are presumed to be saprophytes. "Wood" refers usually to decorticated logs, stumps, branches, chips, etc., but certain *Polyporaceae* are included even though the fruit-bodies are formed outside the bark. "Catkins," "fruits," "seeds," "old leaves," etc., are sometimes listed, and refer to fungi on these parts after falling to the ground. "Stems" refers to dead stems of herbaceous plants.

Certain hosts, such as *Populus*, *Triticum* and *Symphoricarpos*, have been examined rather carefully for fungi, others but little, and many hosts are not included in the Host Index because no fungus has as yet been recorded on them in Man. or Sask.

The sources of names of hosts are given in Section I above. Hosts infected by inoculation are not included in the Host Index. When two or more species of hosts in alphabetical sequence have the same fungi recorded, the names of the fungi are not repeated. Query marks applying to hosts or fungi are nearly all omitted in the Host Index.

Abies balsamea (L.) Mill.

- Lophodermium Piceae*
- Melanospora Abietis-capreaeformis*
- Paeciniestrax Goepfertianum*
- Uredinopsis maritima*
- U. Struthiopteridis*

Age *Amphiphaena intricata*

- Ascochyta Abietis*
- Corticium gaelectum*
- Dactylospora Agrostis*
- Marasmius campanulatus*
- Sclerococcia balsamea*

Bark *Calamella viridis*

- Cenophora olivacea*
- Tremella zocharina* var. *foliacea*

Wood *Corticium bicolor*

- C. pelliculare*
- C. subconatum*
- Fomes pinicola*
- F. subresum*
- Glonum stellatum*
- Hymenochaete tenuis*
- Hypochnus fumosus*
- H. umbrinus*
- Oxydonta albobriza*
- Pentophora alutaria*

Abies balsamea (L.) Mill. -Con.

- P. pinna*
- Phyrrum contextum*
- Polyporus Schweinitzii*
- Acer Ginnala Maxim., cult.*
- Rhytisma acerinum*

Acer *interior* Britt.

- Piggotia Negundinis*
- Septoria Negundinis*

Acer *Negundo* L., native and cult.

- Fusarium latitum*
- Phyllosticta Negundinis*
- Piggotia Negundinis*
- Septoria Negundinis*

Age *Camarsporium Negundinis*

- Cytospora annulata*
- Diplodia atrata*
- Fusicoccia phaeospora*
- Lophostoma quadricolatum*
- L. triptatum*
- Microdiplodia subsecta*
- Nectria cinnabarina*
- Phoma fumosa*
- Sclerocydon compositum*
- Sphaeropsis albescens*
- Teleospora clavispora*

Acer Negundo L., native and cult.—Cos.

- fungi: *Tuberularia vulgaris*
 bark: *Diatripe bochelegae*
Eutypa nodulanda
Hypoecia rufa
Labrella acerina
Penicillaria longispora
Stereum cinereosens
 wood: *Bertia moriformis*
Coniophora suffocata
Corticium fenestratum
Daedalea uricolor
Favolas canadensis
Fomes connatus
F. aculeatus
Fusarium reticulatum var. *Negundinis*
F. sambucinum
F. Scirpi var. *acuminatum*
F. sporotrichoides
Guepinia elegans
Hypochnus umbrinus
Leucophaea hirsuta
Moussis eiceana
Odonia arguta
O. setigera
Othia Hypoxylon
Penicillaria gustulifera
Phobota albocrenulata
P. spectabilis
Pleurotus elongatipes
P. septicus
P. ulmarius
Polyporus elegans
P. gilvus
P. resinosa
P. talliferus
Poria ferruginosa
Radicium spathulatum
Rodionium mammiformis
Stoeckherium septentrionale
 smokes: *Phoma negundincola*

Acer saccharinum L., cult.

- Rhytisma acerinum*
Sphaeropsis albescentis

Acer spicatum Lam.

- Gloeosporium tremulinum*
Phlebospora canadensis
Phyllosticta murina
P. muscigena
Rhytisma punctatum
Uncinula cinctata

Achillea millefolium L.

- Entyloma Achilleae*
Pleiospora marginalis
Puccinia millefolii

Actaea alba (L.) Mill.**Actaea rubra (Ait.) Willd.**

- Puccinia rubigo-vera* var. *Agropyri*
Ramularia Actaeae

Actaea rubra var. neglecta (Gillman) B. L. Robinson

- Ramularia Actaeae*

Aegilops cylindrica Host, cult.

- Puccinia glumarum*

Agaricaceae: see also Coprinus and Russula

- Dactylium dendroides*
Myrogonia scervina
Sepodoniopsis chrysospermata
Sporodina grandis

Agastache Foeniculum (Pursh) O. Kuntze

- Sphaerotheca Humuli* var. *fuliginosa*

Agoseris glauca (Pursh) Steud.

- Puccinia extensicola* var. *hoerstiata*
P. Hieracii

Agrimonia gryposepala Wallr.

- Pucciniastrum Agrimoniae*

Agropyron cristatum J. Gaertn., cult.

- Claviceps purpurea*
Puccinia graminis
Pythium arbutus-annae var. *canadense*

Agropyron dasystachyum (Hook.) Scribn.

- Claviceps purpurea*
Erysiphe typhina
Puccinia graminis
P. montanensis
P. rubigo-vera var. *Agropyri*

Agropyron Griffithii Scribn. & Smith, cult.

- Puccinia graminis*

Agropyron repens (L.) Beauv.

- Claviceps purpurea*
Erysiphe graminis
Puccinia graminis
P. montanensis
Pythium arbutus-annae var. *canadense*
Scielectotrichum graminis

Agropyron Richardsonii Schrad.

- Puccinia graminis*
P. montanensis
P. rubigo-vera var. *Agropyri*
Septoria Agropyri

Agropyron Smithii Rydb.

- Aecochyta graminicola*
Bacterium Agropyri
Claviceps purpurea
Erysiphe typhina
Puccinia graminis
P. montanensis
P. rubigo-vera var. *Agropyri*
Scielectotrichum graminis
Septoria Agropyri

Agropyron tenerum Vasey, native and cult.

- Claviceps purpurea*
Colletotrichum graminis

Agropyron tenerum Vasey, native and cult.

—Ces.

- Nigropora ephatica*
Phyllachora graminis
Puccinia corenata
P. graminis
P. montanensis
P. rubigo-vera var. *Agropyri*
Pythium arbencomatus var. *caesidius*
Septoria Agropyri
Ustilago bromivora

Agropyron spp.

- See *Ophiobolus graminis*
Puccinia glumarum
old stem *Atropispermum compositum*

Agrostis alba L., native and cult.*Puccinia graminis***Agrostis hyemalis** (Walt.) B. S. P.

- Phyllachora graminis*
Puccinia graminis
P. Lutrillii

Alisma Plantago-aquatica L.

- Dicranium Alismatis*
Phyodermis maculata
Rhynchosporium Alismatis

Allium Cepa L., cult.

- Botrytis Allii*
Cellotriehium circinans
Peronospora Schledzeniana
Urocystis Cepulae

Allium textile A. Nels. & Macbr.*Puccinia granulipora***Alnus incana** (L.) Moench

- Frankia Alni*
Microspasma Alni
Ophiostoma alneum
Phyllosticta corylea
Septoria alnifolia
Taphrina Alni-incanae

branches *Ectis moriformis*

- Cyphella fasciculata*
Daedalea unicolor
Dacrydium concentrica
Diatrypella placenta
Eutypella cerviculata
Fomes ignarius
Hymenochaete badioferruginea
Hypoxylon fusum
H. Mores
Melanconium marginale
M. theleboia
Merulius niveus
Odonia setigera
Pezizophora aurantiana
Polyporus tulipiferus
Tecula alba
Tremella lutescens

Alnus incana (L.) Moench—Ces.

- branches* *Trogia triapa*
Velva stibrens
Vasaria moroides
colinus *Ciboria amentacea*
Sclerotinia Alni

Alopecurus geniculatus L., var. *aristulatus* Torr.*Uromyces Alopecuri***Alopecurus pratensis** L.*Puccinia graminis***Althaea rosea** L., cult.

- Ascochyta parvifolia*
Cercospora althaeina
Phyllosticta althaeicola
Phaeodendron Meliloti
Puccinia Malvaearum
Sclerotinia sclerotium
Septoria malvacea
old stem *Sclerotium dendium*

Althaea sp. cult.*Erysiphe Cichoracearum***Amaranthus retrofractus** L.

- Albugo Bliti*
Alternaria Amaranthi
A. Solani

Ambrosia patulostachya DC.

- Albugo Tragopogoni*
Plasmopara Nibbedii
Puccinia Xanthi

Ambrosia trifida L.

- Eutypella Compositarum*
Erysiphe Cichoracearum
Puccinia Xanthi
Septoria basiflora

Amelanchier alnifolia Nutt.

- Agrostomyces Collinsii*
Cytospora leucostoma
Entomosporium maculatum
Gymnosporangium claviforme
G. clavipes
G. corniculata
G. juvenescens
G. Nelsoni
Hendersonia Mai
Monilia Amelanchieris
Phyllosticta immutabilis
Podosphaera Oxyacanthae
Trichosporium parvibacum
branches *Calonectria Deaconii*
Corticium septentrionale
Cryptosphaeria foenicula
Drapetis tuberculosa
Diatrype stigma
Diatrypella quercina
Fomes scutellatus
Hymenochaete aggregata

Amelanchier alnifolia Nutt.—*Con.*
branches *Hypoxylon fascium*
Karstia lignyota
Mutinus Fyri
Penicillium cinereum
Pleospora pustulosa
Polyporus planellus
P. tenuipilatus
P. tulipiferus
Sphaeroneura pruinosa
Valsa leucostoma
old leaves *Lophodermium tunatum*
Amorpha canescens Pursh
Cercospora pseudoroides
Uromyces Amorphae
Amorpha fruticosa L.
Uromyces Amorphae
branches *Camarosporium Amorphae*
Cureularia elongata
Diaporthe Amorphae
Diatrype tubida
Diplosis Amorphae
Plasmactera siparia
Sphaeropsis Amorphae
Stagonospora Amorphae
Amorpha nana Nutt.
Uromyces Amorphae
Amphicarpa monnina (L.) Ell.
Cercospora monnina
Erysiphe Polygoni
Erythritum acedentes
Andromeda polifolia L.
Rhytisma Andromedae
Andropogon furcatus Muhl.
Sphaelotheca occidentalis
Andropogon scoparius Michx.
Puccinia Andropogonis var. *Pentstemonae*
P. Elliptica
Anemone canadensis L.
Didymaria didyma
Plasmopora pygmaea
Puccinia Anemones-virginianae
P. Magnusana
Septoria Anemones
Anemone cylindrica Gray
Phleopora Anemones
Puccinia rubigo-vera var. *Agropyri*
Anemone globosa Nutt.
Puccinia rubigo-vera var. *Agropyri*
Anemone patens L. var. *Wolfgangiana*
 (Besser) Koch
Puccinia Pustillae
Tranzschelia suffusa
Uromyces Anemones
Antirrhinum majus L., cult.
Phyllosticta Antirrhini
Puccinia Antirrhini

Aphididae (Insecta)
Empusa Aphidis
Aphodius foveolarius (Insect)
Beauveria Bassiana
Apium graveolens L., cult.
Bacillus carotovorus
Cercospora Apii
Septoria Apii
S. Apu-graveolentis
Aplopappus spinulosus (Pursh) DC.
Puccinia Grindeliae
Apocynum androsaemifolium L.
Cercospora Apocyni
Apocynum cannabinum L.
Cylindrosporium Apocyni
Apocynum scapularum Greene
Cylindrosporium Apocyni
C. elucium
Apocynum sibiricum Jacq.
Cercospora Apocyni
Cylindrosporium sibiricum
Septogloeum Apocyni
Aquilegia sp. cult.
Marasmius Aquilegiae
Arabis brachycarpa (Torr. & Gray) Britt.
Puccinia monnina
Arabis glabra (L.) Bernh.
Albugo candida
Arabis ovata (Pursh) Four.
Arabis retrofracta Grah.
Puccinia monnina
Arabis nudicaulis L.
Cylindrosporium leptospermum
Nysospora clavellina
Arceuthobium americanum Nutt.
Waltheriella Arceuthobii
Arctium Lappae L.
Phyllosticta Lappae
Septoria Lapparum
Arctium minus Bernh.
Puccinia Bardanae
Septoria Lapparum
old stems *Pendlepora cinerea*
Pustillaria monnina
Arctostaphylos rubra (Rehder & Wilson)
 Fernald
Puccinastrium sparum
Arctostaphylos uva-ursi (L.) Spreng.
Chrysomyx Arctostaphyli
Exilaudium Vaccini
old leaves *Sphaeropsis Vaccini*
Arenaria lateriflora L.
Puccinia Arenariae
Argentina: see *Potentilla*
Artemisia biennis Willd.
Albugo Tragopogonis
Puccinopsis Artemisiae-biennis

Artemisia biennis Willd.—*Con.*

Puccinia atrofusca

old stems *Leptosphæria pyrenopezizoides*

Ophiobolus acuminatus

O. fulgidus

Artemisia campestrum Rydb.

Puccinia atrofusca

Artemisia cana Pursh

Puccinia Absinthii

Artemisia frigida Willd.

Puccinia Absinthii

P. sulcifolia

Artemisia glauca Pallas

Puccinia atrofusca

Artemisia graphalodes Nutt.

Cylindrosporium Artemisiae

Puccinia Absinthii

P. atrofusca

Artemisia Purshiana Besser

Puccinia atrofusca

Artemisia sp.

Erysiphe Cichoracearum

Peridermium suffrutta

old stems *Phoma nebulosa***Asclepias syriaca** L.

Cercospora clavata

Phyllosticta cornuti

Asclepias sp.

Colletotrichum fusarioides

Asparagus officinalis L. cult.

Botrytis cinerea

Puccinia Asparagi

Asplenium: see *Athyrium***Aster cordifolius** L.

Cercospora ceras

Coleosporium Solidaginis

Puccinia Asteris

Septoria atropurpurea

Aster ericoides L.

Coleosporium Solidaginis

Aster laevis L.

Coleosporium Solidaginis

Eutyloma Compositarum

Puccinia Asteris

Septoria atropurpurea

Aster lateriflorus (L.) Britt.

Coleosporium Solidaginis

Aster Lindleyanus Torr. & Gray

Cercospora Solidaginis

Erysiphe Cichoracearum

Puccinia Asteris

Septoria atropurpurea

Aster multiflorus Ait.

Puccinia Asteris

P. artemisiicola var. Asteris

Aster novae-angliae L.

Coleosporium Solidaginis

Erysiphe Cichoracearum

Puccinia Asteris

Ramularia Asteris

Aster novi-belgii L.

Septoria atropurpurea

Aster paniculatus Lam.**Aster salicifolius** Ait.

Cercospora Solidaginis

Aster tataricus L., cult.

Septoria atropurpurea

Aster umbellatus Mill.

Coleosporium Solidaginis

Aster spp., old stems

Dasyomyces sulfurea

Leptosphæria dolichum

Montagnella Helopseidia

Ophiobolus fulgidus

Phiala cyathodes

Astragalus adsurgens Pall.

Phylospora aurantia

Astragalus alpinus L.**Astragalus bisulcatus** Gray

Phylospora magnatoma

Astragalus canadensis L.

Peridermium Astragali

Astragalus gonistatus Nutt.

Phylospora aurantia

Astragalus pectinatus Dougl.

Phoma Astragali

Phylospora aurantia

Septoria psammophila

Athyrium Filix-femina (L.) Roth

Uredinopsis Struthiopteridis

Atriplex sp.

Cercospora dubia

Puccinia Aristidae

Avena sativa L.

Claviceps purpurea

Helminthosporium Avenae

Puccinia coronata

P. graminis

Pythium artemesiacum var. canadense

Ustilago lavis

Avena Hookeri Scribn., cult.

Claviceps purpurea

Avena nuda L., cult.

Puccinia graminis

Avena sativa L. cult.

Roestelia strafaciens

Claviceps purpurea

Colletotrichum graminicola

Fusarium arthrosporioides

F. avenaceum

F. bulbigenum

F. bulbigenum var. Lycopersici

Avena sativa L., cult.—Con.

- F. culmorum*
F. Equiset
F. oxyspermum
F. oxyspermum var. *serotiacum*
F. Pose
Helminthosporium Avenae
H. genuatum
H. sativum
Leptosphaeria avenaria
Ophiaster radialis
Pseudomonas cornuifaciens
Puccinia coronata
P. graminis
Pythium archenontense var. *canadensis*
P. volutum
Septoria Avenae
Ustilago Avenae
U. teris

old parts: *Bullera alba*
Gelatinospora cerealis
Leptosphaeria culmicola

Axylis sinuanthodes L.

old stems: *Dipodina Ellisi*

Azalea sp. cult.

Exobasidium Yaoutii

Beckmannia Syzigachne (Steud.) Fern.

- Colletotrichum graminicola*
Erysiphe graminis
Puccinia coronata
P. graminis
Ustilago striformis

Berberis aquifolium Pursh, cult.

Puccinia graminis

Berberis Thunbergii DC., cult.

old stems: *Cuticularia Berberidis*

Berberis vulgaris L., cult.

- Phyllosticta Berberidis*
Puccinia graminis
 old stems: *Cucurbitaria Berberidis*
Leptosphaeria Berberidis
Phoma berberidella

Beta vulgaris L., cult.

- Cercospora beticola*
Phoma Betae
Phyllosticta Betae

Beta vulgaris var. cicla L., cult.

Peronospora Schachtii

Betula alba L., var. papyrifera (Marsh.)

- Spach
Cladosporium cadaverum
Fomes foetidissimus
F. ignarius
Gloeosporium Betulae-papyriferae
Melanconium parvulum
Phyllactinia corylea
Phylllosticta Betulae

Betula alba L., var. papyrifera (Marsh.)

Spach—Con.

- Septoria betulicola*
 S. Boyet

twigs: *Coniothecium betulinum*

- Distrype stigma*
Distrypella decorata
Libertella betulina
Melanconium decorans
Melanconium parvulum
Stagonosporium Fautreyi
Torula alba
Truncula lotescens

bark: *Hypoxylon multififorme*

- Hysterium pulicariae*
Lachnum bicolor
Neematela nucleata
Paras violaceoflavus
Scotema agnomia

wood: *Arachnospiza aurelia*

- Calocera cornea*
Coritium pelliculare
Daedalea unicolor
Favulus canadensis
Fomes ignarius var. *nigricans*
Hemitium citrinum
Hypochnus coriarius
H. pallidoflavus
Lamasphaeria orina
Leptographa fatetorum
Lentinus cochlearis
Lentinus betulina
Morchia tremellosa
Paras rods
P. styliatus
Paras bipedis
Peniophora summatia
P. cinerea
Phlebia strigoseonata
Pleurotus petaloides
P. serotinus
Polyporus albellus
P. arcularius
P. betulinus
P. brunnatus
P. nidulans
P. parvulus
Porothelium fimbriatum
Schizoscyphium commune
Steccherinum pulcherrimum
S. septentrionale
Strobilum fasciatum
S. hirsutum
S. purpureum
S. rugosiusculum
Troglia crispata
Tulasnella Eichleriana

- Betula alba** L., var. *papyrifera* (Marsh.)
 Spach: Con.
 catkins: *Ciboria* sp.
 seeds: *Sclerotinia Betulae*
- Betula fontinalis** Sargent
Fomes igularius
- Betula** sp.
Melampsoridium betulinum
Microsphaera Alna
Fomes pinicola
 branches: *Daldinia occidentalis*
- Bidens cernuus** L.
Septocyladium concomitans
- Bidens frondosa** L.
Cercospora umbellata
Plasmopora Halstedii
Septocyladium concomitans
Sphaerotheca Humuli var. *fuliginosa*
- Bidens glaucescens** Greene
Sphaerotheca Humuli var. *fuliginosa*
- Bidens vulgaris** Greene
Septocyladium concomitans
- Bittium**: see *Chenopodium*
- Boletus** spp.
Sepedonium chrysospermum
Sporodina grandis
- Bouteloua curtipendula** (Michx.) Torr.
Bouteloua gracilis (H.B.K.) Lag.
Puccinia vetula
- Bouteloua oligostachya** (Nutt.) Torr.
Helminthosporium sp.
- Brassica arvensis** (L.) O. Kuntze
Albugo candida
Alternaria Brassicae
Peronospora Brassicae
- Brassica juncea** (L.) Coeson
Albugo candida
Peronospora Brassicae
- Brassica oleracea** L. var. *botrytis* L., cult.
Alternaria Brassicae
Bacillus carotovorus
Phoma lagum
- Brassica oleracea** var. *capitata* L., cult.
Alternaria Brassicae
Bacillus carotovorus
Phoma longum
Rhizoctonia Solani
Sclerotinia sclerotiorum
- Brassica Napobrassica** Mill., cult.
Rhizoctonia Solani
- Brassica Rapa** L., cult.
Alternaria Brassicae
- Briza maxima** L.
Fusarium culmorum
Puccinia graminis
- Bromus ciliatus** L.
Puccinia coronata
P. rubigo-vera var. *Agropyri*
P. rubigo-vera var. *agropyrina*
Ustilago bromovora
- Bromus hordeaceus** L.
Puccinia graminis
- Bromus inermis** Leyss., cult. and escaped
Claviceps purpurea
Fusarium culmorum
P. Equiseti
F. Poae
Helminthosporium Bromi
Nigrospora sphacelica
Pythium arrhenomanes var. *canadensis*
Septoria Bromi
S. bromigena
 old stems: *Leptospheria culmifraga*
Pleospora Harknessii
Pyrenophora Bromi
- Bromus latiglumis** (Shear) Hitchc.
Puccinia rubigo-vera var. *agropyrina*
- Bromus Porteri** (Coulter) Nash
Puccinia coronata
P. rubigo-vera var. *Agropyri*
- Bromus purgans** L.
Puccinia rubigo-vera var. *agropyrina*
- Bromus Pumpehianus** Scribn.
Claviceps purpurea
Puccinia coronata
P. graminis
P. rubigo-vera var. *Agropyri*
- Bromus sitchensis** Trin., cult.
Puccinia graminis
- Bromus** sp., old stems
Aeropermium compressum
Sordaria fimicola
- Bursa**: see *Capsella*
- Calamagrostis canadensis** (Michx.) Beauv.
Phyllostachya graminis
Puccinia coronata
Septoria nebulosa
- Calamagrostis elongata** Rydb.
Puccinia coronata
- Calamagrostis inexpectata** Gray
Epichloe typhina
Puccinia coronata
- Calamagrostis** sp.
Claviceps purpurea
- Calamovilfa longifolia** (Hook.) Hack.
Puccinia amphigena
- Calla palustris** L.
Cercospora Callae
- Callistephus chinensis** Nees, cult.
Colosporium Soudaginis
Fusarium conglutinans var. *Callistephi*
Septoria Callistephi

- Caltha palustris** L.
Erysiphe Polygoni
Puccinia Calthae
P. calthicola
- Camelina microcarpa** Andrz.
Albugo candida
Peronospora Camelinae
- Camnula pellucida** (Scud.) (insect)
Empusa Gryli
- Campanula sparsinoides** Pursh
Septoria Campanulae
- Cannabis** sp. cult.
Septoria Cannabis
- Cantharellus** see *Agricolas*
- Capnoides** see *Corydalis*
- Capella Bursa-pastoris** (L.) Medic.
Albugo candida
Peronospora parasitica
- Caragana arborea** Lam.
Fusicium areolatum
F. Solani
Septoria Caraganeae
branches: Camarosporium Caraganae
Cucurbitaria Caraganae
Polyporus tulipiferus
Sclerotinia fusca
Tuberularia vulgaris
- Carex aquatilis** Wahlenb.
Cintractia Carex
- Carex athyroides** Spreng.
Cintractia Carex
Puccinia Carex-Shepherdiae
Urocystis Fischeri
- Carex Douglasii** Boott
Puccinia atrofusca
- Carex diutifolia** Bailey
Puccinia Carex var. *granulata*
- Carex filifolia** Nutt.
Cintractia externa
Puccinia atrofusca
- Carex gynocrates** Wornak.
- Carex heliophila** Mackenzii
Cintractia Carex
- Carex lanuginosa** Michx.
Cintractia subinclusa
Puccinia Carex-Shepherdiae
- Carex limosa** L.
- Carex obtusata** Lij.
Cintractia Carex
- Carex praegracilis** Boott
Puccinia atrofusca
- Carex Sertwellii** Dewey
Puccinia extensicola var. *Oenotherae*
- Carex Sprengelii** Dewey
Puccinia extensicola var. *hirsuticula*
- Carex substricta** (Kukenth.) Mackenzii
Cintractia Carex
Puccinia Carex-Shepherdiae
- Carex varia** Mühl.
Ascochyta teretivacuola
- Carex vesicaria** L.
Phyllosticta Carex
Puccinia Carex var. *urticae*
P. Carex-Shepherdiae
Septoria Carex
Stagonospora albescens
- Carex** spp.
Cercospora Carex
Puccinia extensicola var. *Aserti*
P. extensicola var. *Solidaginis*
dead parts: Cryptosporium nubulosum
Metasphaeria cumania
Penicillium Sumburi
- Castilleja coccinea** (L.) Spreng.
Ramularia coccinea
old stems: Ophiobolus acuminatus
- Castilleja sessiliflora** Pursh
Puccinia Andropogonis var. *micropuncta*
- Celastrus scandens** L.
Phyllosticta corylea
Phyllosticta spermodon
Ramularia Celastris
branches: Cytospora umbrae
Distyche Celastris
Dimerisporium Robiniae
Fomes scutellatus
Hyeterium ussuriense
Nectria comastriana
Polyporus tulipiferus
Sphaeropsis peopulana
Valsa ambigua
- Chaetochloa** see *Seteria*
- Chamaedaphne calyculata** (L.) Moench
Chrysomyxa Cassandrae
Gloeosporium Chamaedaphniae
Venturia pulchella
- Chamaenerion** see *Ephedrium*
- Chamaesyce** see *Euphorbia*
- Chenille** see *Erysimum*
- Chenopodium album** L.
Cercospora dubia
Peronospora variabilis
Puccinia Aristidis
Stagonospora Atriplicis
Urophlycta pulposa
old stems: Diplodia Ellisi
Phoma longissima
- Chenopodium capitatum** (L.) Aesch.
Stagonospora Atriplicis
- Chenopodium glaucum** L.
Urophlycta pulposa

- Chenopodium hybridum** L.
Stagonospora atriplicis
- Chickens**
Aspergillus fumigatus
Rhizopus rhizopodiformis
- Chrysophila umbellata** (L.) Nutt.
Mycoasphaeria chinaphilina
- Chrysanthemum maximum** Ramond, cult.
Septoria chrysanthemella
- Chrysanthemum** sp. cult.
Erysiphe Chrysosmarum
- Chrysopsis hirsutissima** Greene
Puccinia Stipes
- Cicuta occidentalis** Greene
Puccinia Cicutae
Uromyces Scirpi
- Cirsium alpinum** L.
Puccinia Cirsiae
- Cirsium arvense** (L.) Scop.
Albugo Tragopogonis
Sclerotinia sclerotiorum
Septoria Cirsii
 old stems: *Mollisia atrocincta*
Ophiobolus porphyrogenus
Phiala cyathoides
Pyrenochaeta erysiphoides
- Cirsium Flodmanii** (Rydb.) Arth.
Puccinia Cirsii
Uromyces Junci
- Cirsium megacephalum** (Gray) Cockrell
Uromyces Junci
- Cirsium muticum** Michx.
Puccinia Cirsii
- Cirsium undulatum** (Nutt.) Spreng.
Puccinia Cirsii
Uromyces Junci
- Citrullus vulgaris** Schrad. cult.
Trichothecium roseum
- Clavaria** spp.
Helminthosphaeria Clavariarum
Boletosporium Clavariarum
Sporodina gracilis
- Clematis ligusticifolia** Nutt., native and cult.
Ceroaspora aquaeducta
Cylindrosporium Clematidis
Puccinia rubigo-vera var. *Agropyri*
Septoria Clematidis
- Clintonia borealis** (Ait.) Raf.
Puccinia mesomajalis
- Collemia**: see *Gilia*
- Comandra livida** Richards.
Cronartium Comandrae
Puccinia Comandrae
- Comandra pallida** A. DC.
Ceroaspora Comandrae
Cronartium Comandrae
- Comandra pallida** A. DC.—*Cen.*
Puccinia Andropogonis var. *pustulata*
P. Comandrae
- Comandra umbellata** (L.) Nutt.
Puccinia Andropogonis var. *pustulata*
- Comarum**: see *Potentilla*
- Convolvulus sepium** L.
Puccinia Convolvuli
Ramularia sepium
Septoria Convolvuli
S. flagellaris
 old stems: *Leptosphaeria delioides*
Psittacina micans
Tinctorum subtile
- Coprinus** spp.
Chondromyces crocatus
- Coptis triflora** (L.) Salisb.
Septoria Coptidis
- Coralorrhiza** sp., old stems:
Coletotrichum Dematium
- Cornus canadensis** L.
Glomerularia Corni
Phyllosticta Corni-canadensis
Puccinia porphyrogetta
Septoria canadensis
- Cornus inaequalis** A. Nels.
Phyllosticta corylea
Septoria cornicola
leaves: *Cryptosporangium cornua*
Valsa cornua
- Cornus stolonifera** Michx.
Phyllosticta corylea
Septoria cornicola
 branches: *Cryptosporangium cornua*
Dermatis Rubi
Diaperis albocornis
D. acuta
Didymosphaeria dipycnopa
Lasiosphaeria canescens
Leptosphaeria borealis
L. rugosa
Lophostoma prominens
Myxosporium nitidum
Osteops tinctoria
Psittacaria clavisporea
Phiala vulgaris
Piezopora pustulans
Roeselia mammiformis
Valsa ambigua
V. cornua
V. coronata
- Corydalis aurea** Willd.
- Corydalis glauca** Pursh
Perozopora Corydalis

- Corylus americana** Walt.
Botrytis cinerea
Oomycetella Coryli
Septoria corylina
- Corylus rostrata** Ait.
Oleosporium Coryli
Oomycetella Coryli
O. Coryli var. *circinata*
Phyllactinia corylea
 branches: *Diatrype albopruinosa*
- Corylus** sp.
Cryptosporella anomala
Microphasma Alni
 branches: *Catula turgida*
Cenangium furfuraceum
Cyphella fasciculata
Diatrypella Frosti
D. missouriensis
Hypoxylon fuscatum
Metaphasma corylina
Nectria rubicarpa
Selenia anomala
Sphaeropsis Coryli
Strophiopsis fusca
Valsa ambigua
V. leucostoma
- Cotoneaster** sp. cult., branches
Cucurbitaria elongata
Valsa ambigua
V. leucostoma
- Crataegus chrysoarpa** Ashe
Gymnosporangium Betulae
G. clavuliforme
 stems: *Diaporthe Crataegi*
- Crataegus** sp.
Gymnosporangium clavipes
G. globosum
Phyllosticta Crataegi
 branches: *Diatrypa albopruinosa*
D. stigma
Diatrypella quercina
Dictydium plumbum
Fomesella phaeospora
Schizoxylon compositum
Sphaeropsis Maecum
Sporodermium compositum
Thyridium canadense
Valsa ambigua
V. leucostoma
- Crepis glauca** Rydb.
Puccinia extenuata var. *lanceolata*
- Crepis runcinata** (Jamon) Torr. & Gray
Puccinia extenuata var. *lanceolata*
P. Elaeod
- Ceanothus virginica** (Innoc.)
Empusa Grylli
- Cucumis melo** L., cult.
Septoria Cucurbitacearum
- Cucumis sativus** L., cult.
Bacillus tracheiphilus
Cladosporium cucumerinum
Fusarium Equiseti
F. Rose
Pseudomonas lachrymans
Sclerotinia sclerotiorum
- Cuscuta**
Empusa vitescens
Tarichium magasperum
- Cypripedium parviflorum** Salisb.
Puccinia Cypripedi
- Cystopteris fragilis** (L.) Bernh.
Hysterochaeta Polypodi
- Dactylis glomerata** L.
Claviceps purpurea
Puccinia graminis
- Daedalea confragosa** (Bolt.) Fr.
Cancrum polyporum
- Dahlia** sp. cult.
Fusarium avenaceum
Sclerotinia sclerotiorum
 old stems: *Acrostagnum oenocharum*
- Dasystaphana** (see *Gentiana*)
- Daucus carota** L., cult.
Pseudomonas carotae
Sclerotinia sclerotiorum
- Delphinium** spp., cult.
Erysiphe Polygoni
Pseudomonas Delphini
Rhacotoma Solani
Sclerotium Delphini
- Deschampsia caespitosa** (L.) Beauv.
Puccinia coronata
P. graminis
- Dianthus barbatus** L., cult.
Alternaria Dianthi
- Dianthus Caryophyllus** L., cult.
Uromyces caryophyllinus
- Dianthus** sp., cult.
Heterosporium echinulatum
- Diatrype** spp.
Nectria epiphysema
- Dibotryon morbosum** (Schw.) Thos. & Syd.
Sporotrichum parviflorum
- Diervilla Lonicera** Mill.
Ramulus ambigua
Septoria Diervillae
- Dimorphotheca** sp. cult.
Albugo Tricuspoides
- Dioscorea carolina** (L.) (Innoc.)
Empusa Grylli
- Distichlis stricta** (Torr.) Rydb.
Phyllactinia graminis
Puccinia Aristidis

- Dodecatheon pauciflorum** (Durand) Greene
Puccinia Ortonia
Uromyces acuminatus var. Steironematis
- Doellingeria**: see Aster
- Draba** sp.
Puccinia Drabae
- Dracocephalum parviflorum** Nutt.
Phyllosticta Dracocephali
Septoria Dracocephali
old stems: Leptosphaeria dolichum
- Echinochloa lobata** Torr. & Gray
Septoria Sieyi
- Elaeagnus angustifolia** L.
Puccinia Caricis-Shepherdiae
- Elaeagnus argentea** Pursh
Cercospora manitobana
Puccinia Caricis-Shepherdiae
P. coronata
branches: Coenophthalma elongata
Fusicium svenaeorum
Peniophora erinea
Valsa ambigua
- Elephas** sp. (Insect)
Laboulbenia flagellata
- Elaecharia** spp.
Claviceps nigrescens
Puccinia Eleocharidis
- Elymus canadensis** L.
Claviceps purpurea
Helminthosporium sativum
H. Tritici-repentis
Phyllachora graminis
Puccinia coronata
P. graminis
P. montanaensis
Uromyces Agropyri
- Elymus curvatus** Piper
Claviceps purpurea
Puccinia graminis
P. montanaensis
- Elymus dahuricus** Turcz.
Claviceps purpurea
Puccinia graminis
- Elymus diversiglumis** Scribn. & Ball
Puccinia rubigo-vera var. Agropyri
- Elymus glaucus** Buckl., cult.
Puccinia graminis
- Elymus innovatus** Beal
Claviceps purpurea
- Elymus jejunus** (Ramalet) Rydb.
Puccinia montanaensis
- Elymus Macouni** Vasey
Claviceps purpurea
Puccinia graminis
P. rubigo-vera var. Agropyri
Ustilago Lorentziana
U. striiformis
- Elymus virginicus** L.
Phyllachora graminis
Puccinia graminis
- Elymus** sp.
Epichloe typhina
- Entoloma**: see Agaricaceae
- Epilobium adenocaulon** Haussk.
Puccinia vagans var. Epilobi-tetragoni
Pucciniastrum pustulatum
Ramularia pustuliformis
Sphaerotheca Humuli
- Epilobium angustifolium** L.
Monochaete Kriegeriana
Puccinia extenuata var. Onotherae
P. gigantea
Pucciniastrum pustulatum
Ramularia cercosporoides
old stems: Pustularia typhaloidea
- Equisetum sylvaticum** L.
Titaeospora detospora
- Equisetum** sp., old stems
Pezizella inquilina
- Erigeron canadensis** L.
Septoria erigeronae
- Erigeron** sp., old stems
Ophiobolus fulgidus
- Eriogonum flavum** Nutt.
Uromyces minicatus
- Eriophorum angustifolium** Roth
Puccinia angustata
- Erysimum cheiranthoides** L.
Peridermium Erysini
Puccinia Aristidae
- Erysiphaceae**
Cicinobolus Cassii
- Eupatorium purpureum** L. var. maculatum
(L.) DC.
Puccinia Eleocharidis
- Euphorbia glyptosperma** Engelm.
- Euphorbia serpyllifolia** Pers.
Uromyces procumbens
- Eutypa** sp.
Nectria euphorbiae
- Falcata**: see Araphidocarpa
- Festuca elatior** L.
Claviceps purpurea
Puccinia graminis
- Festuca Myuros** L., cult.
Puccinia graminis
- Festuca ovina** L.
Puccinia Crandallii
- Ficus elastica** Roxb., cult.
Gloeosporium sp.
- Filix**: see Cystopteris
- Filix**
Empusa americana
E. Mucosa

- Fomes** spp., old
Hypoecia citrina
Melanospore lignaria
- Fragaria glauca** (Watson) Rydb.
Marsomera Potentillae
Ramularia Tulamei
- Fragaria pauciflora** Rydb.
Marsomera Potentillae
- Fragaria** spp., native or cult.
Botrytis cinerea
Ramularia Tulamei
Sphaerotheca Humuli
Uncinula parvula
- Fraxinus campestris** Britt.
Piggotia Fraxini
 wood *Poria Vaillantii*
- Fraxinus pennsylvanica** Marsh., native and cult.
Phyllosticta viridis
Piggotia Fraxini
Puccinia peridermosporea
Septoria Bomeyi
- branches:** *Botryosphaeria fuliginosa*
Camarosporium Qm.
Cenangium populneum
Corticium argentatum
Curreyella Nisoyi
Dinemasporium Robesonae
Eutypella Vitis
Fusarium lateritium
Hormotium anliquum
Hysteroglyphus Fraxini
Leptostoma triseptatum
Ostrea cinerea
Peridermium cinerea
Sphaeropsis fertilis
Sporodromium compositum
Valsa ambigua
V. fraxinea
- berk.** *Corticium crustaceum*
Dietydaethalium plumbeum
- wood:** *Calosium pusillum*
Chaetomella atra var. *lignicola*
Chlorosplenium aeruginosum
Hypochnus umbrinus
McGaria cinerea
Patellaria atrata
Parmophora incornata
P. lupoviciana
P. pubera
P. Samburi
Peziziana quadrata
Piezotus applanatus
P. lignatus
Propolis faginea
Rhodina medullaris
- Fraxinus pennsylvanica** Marsh., native and cult.—*Cont.*
amarum *Colletotrichum Dematium* var. *saturnicola*
Dicoma arctocrea
Valutella ciliata
Julien leana: *Pistillaria clavulata*
- Fraxinus pennsylvanica** var. *lanceolata* (Borkh.) Saeg.
Phyllosticta viridis
Piggotia Fraxini
Puccinia peridermosporea
- Gaillardia aristata** Pursh, native and cult.
Etiyloina polyporum
- Galeopsis tetrahit** L.
Erysiphe Galeopsidis
Septoria Galeopsidis
- Galium boreale** L.
Haemelia borealis
Peridermium borealis
Phoma elliptica
Plasmodiopsis punctifertis
Puccinia rubefaciens
Septoria pilosella
- Galium trifidum** L.
Puccinia punctata
- Galium triflorum** Michx.
Plasmodiopsis punctiformis
Pseudopeziza repanda
Puccinia punctata var. *tragodytes*
Septoria pilosella
- Galium** sp.
Erysiphe Cichomocarum
- Gomphocerus clavatus** Thom. (Insect)
Empusa Gryll
- Gaultheria procumbens** L.
Venturia Gaultheriae
- Gaura coccinea** Pursh
Uromyces plumbarius
- Gentiana affinis** Griseb.
Puccinia Gentianae
- Gentiana Amarella** L. var. *acuta* (Michx.)
Heder
Puccinia Halimae
- Gentiana Andrewae** Griseb.
Asteroma Gentianae
- Gentiana interrupta** Greene
Puccinia Gentianae
- Gentiana strictiflora** (Rydb.) A. Nels.
Uromyces Gentianae
- Geranium maculatum** L.
Plasmodiopsis Geranii
- Geum macrophyllum** Willd.
Sphaerotheca Humuli

***Gaum strictum* Art.**

- Cercospora* Gai
Cylindrosporium Gai
Peronospora Gai
Phyllosticta dendica
Sphaerotheca Humuli
 old stems *Diocisia arborescens*

***Gaum triflorum* Pursh**

- Peronospora* Gai
Ramularia Gai
Uromyces Waldsterensis

***Gilia linearis* (Nutt.) Gray**

- Phytophthora parasitica*
Septoria Ghae
Sphaerotheca Humuli
Uromyces acuminatus var. *Polemonii*

***Gladiolus* sp. cult.**

- Bacterium gummosum* Gans
B. marginatum
Penicillium Gladioli
Sclerotium Gladioli
Uromyces Gladioli

***Glaux maritima* L.**

- Puccinia Arctidae*
P. Distichidis

***Glyceria grandis* Watson**

- Ascochyta graminicola*
Claviceps macrocephala
Ustilago longistoma

***Glycine max* Merr. cult.**

- Fusarium Solani*
Pseudomonas glycinea

***Glycyrrhiza lepidota* (Nutt.) Pursh**

- Erysiphe Fungorum*
Septoria Glycyrrhizae
Uromyces Glycyrrhizae

***Godetia* sp. cult.**

- Pucciniastrum pustulatum*

Gomphocarpus

- Saprolegnia parasitica*

Grasshoppers

- Empusa Gryll.*
Rhacopus rhacopodiformis
Scopulariopsis brevicauda

***Grindelia perennis* A. Nels.**

- Puccinia Grindeliae*

***Grindelia aquarrosa* (Pursh) Donal.**

- Erysiphe Cichoracearum*
 old stems *Ophiobolus filiferus*

***Gyrinus lugens* (Jacq.)**

- Leboribolus Gyrinidarum*

***Halenia deflexa* (J. E. Sm.) Griseb.**

- Cercospora Halimac*

Halerpestes*: see *Ranunculus***Hedysarum americanum* (Michx.) Britt.*****Hedysarum boreale* Nutt.*****Hedysarum cinerascens* Rydb.**

- Uromyces Hedysari-obsoletum*

***Helianthemum autumnale* L.**

- Septoria Helianthi*

***Helianthus annuus* L., cult.**

- Botrytis vulgaris*
Erysiphe Cichoracearum
Plasmopara Halstedii
Puccinia Helianthi
Scierotinia sclerotiorum
Septoria Helianthi
 old stems *Dasytypha sporotricha*
Leptosphaeria dothidea
Oedoeophagus gomerculosum
 old leaves *Didymium anellus*

***Helianthus aridus* Rydb.**

- Puccinia Helianthi*

Helianthus strabus* L.**Helianthus divaricatus* L.**

- Erysiphe Cichoracearum*

***Helianthus fascicularis* Greene**

- Puccinia Helianthi*

***Helianthus Maximiliani* Schrad.**

- Plasmopara Halstedii*
Puccinia Helianthi
Septoria Helianthi

***Helianthus petolaris* Nutt.**

- Plasmopara Halstedii*
Puccinia Helianthi
Septoria Helianthi
Uromyces Junii

***Helianthus subrhomboides* Rydb.**

- Plasmopara Halstedii*
Puccinia Helianthi
Uromyces Junii

***Helianthus subterreus* Bourg.**

- Puccinia Helianthi*

***Helianthus tuberosus* L.**

- Ascochyta Compositarum*
Puccinia Helianthi
Septoria Helianthi

***Helvella* spp.**

- Mycogone ochroleuca*
Sphaerocnema Helveliae

***Heracleum lanatum* Michx.**

- Cylindrosporium Heraclei*
Phyllactinia Heraclei
Phyllosticta Heraclei
Ramularia Heraclei
 old stems *Ophiobolus angulatus*

***Heteranthera dubia* (Jacq.) MacM.**

- Membranocorus Heterantherae*

***Heuchera Richardsonii* R. Br.**

- Cercospora Heucherae*
Puccinia Heucherae

***Hibiscus sacculantus* L., cult.**

- Phyllosticta hibiscina*

- Hieracium canadense** Michx.
Erysiphe Cichorieacearum
Puccinia Hieracii
- Hieracium scaberrimum** Schw.
Puccinia extensa var. hieracata
Puccinia Hieracii
- Hierochloa odorata** (L.) Wahlenb.
Aecochyta graminis
Ophiobolus graminis
Puccinia graminis
Sphaerella ignobilis
- Holcus Sorghum** L., cult.
Sphaecothea Sorghi
- Holcus sudanensis** (Piper) L. H. Bailey, cult.
Baobus Sorghi
Puccinia graminis
- Hordeum jubatum** L.
Claviceps purpurea
Erysiphe graminis
Helminthosporium sativum
Ophiobolus graminis
Puccinia glumarum
P. graminis
P. montanensis
P. rubigo-vera var. Agropyri
P. rubigo-vera var. Impatiens
Rhynchosporium Secalis
Scielectricum graminis
Septoria Paserinii
Ustilago Lerotiana
- Hordeum murinum** L., cult.
Puccinia graminis
- Hordeum vulgare** L., cult.
Claviceps purpurea
Diophaspora Alopecuri
Erysiphe graminis
Fusarium avenaceum
F. bulbigenum
F. bulbigenum var. Lycopersici
F. culmorum
F. Equiseti
F. oxysporum
F. oxysporum var. avenaceum
F. reticulatum
F. Scirpi
F. Solani
Helminthosporium geniculatum
H. gramineum
H. sativum
H. tenuis
Heterosporium Avenae
Lagenia radicata
Ophiostoma radica
Ophiobolus graminis
Pseudomonas atrofaciens
P. translucens
P. translucens var. undulosa
- Hordeum vulgare** L., cult.—Com.
Puccinia anomala
P. glumarum
P. graminis
Pythium arhenoceras var. canadense
P. volutum
Rhynchosporium Secalis
Scielectricum graminis
Septoria Paserinii
Ustilago Hordei
U. mediana
U. nuda
dead parts Aecomonella atra
Chaetomium elatum
C. fumicola
- Houstonia longifolia** Gascr.
Uromyces houstonianus
- Humulus Lupulus** L.
Colletotrichum Humuli
Pseudoperonospora Humuli
Sphaerotheca Humuli
old stems Dipodis Humuli
- Hydnaceae**, old
Peniophora Sambuci
- Hygrophorus** see Agaricaceae
- Hypochoeris** spp., old
Conothyrium parasitica
Hypochoeris patella
- Hypericum perforatum** L.
Uromyces Hyperici
- Iberis** sp., cult.
Rhizoctonia Solani
- Impatiens biflora** Walt.
Plasmodium obducens
Puccinia argentea
P. rubigo-vera var. Impatiens
- Iris versicolor** L.
Puccinia Iridis
P. aestiva
- Iris** spp., cult.
Bacillus carotovorus
Didymella Iridis
Heterosporium gracile
- Iris axillaris** Persh.
Albugo Tragopogonis
Puccinia intermedia
- Iris xanthifolia** Nutt.
Baudophora Kellermannii
Phyllosticta iridis
Sclerotinia sclerotiorum
- Juglans nigra** L., cult.
Microstroma Juglandis
- Juncus ater** Rydb.
- Juncus balticus** Willd.
- Juncus Dudleyi** Wiegand
- Juncus filiformis** L.
Uromyces Junci

- Juncus longistylis** Torr
Juncus tenuis Willd.
 Uromyces Silphii
- Juniperus communis** L.
 Gymnosporangium clavipes
 Stigmates Juniperi
 branches: Peronospora nuda
- Juniperus horizontalis** Moench
 Gymnosporangium corniculata
 G. juvenescens
 G. globosum
 Lophodermium juniperinum
 frigs: Hysterium acuminatum
 Kamelia deformata
- Juniperus sibirica** Burgsd.
 Gymnosporangium clavipes
- Juniperus** sp., old frigs
 Corticium polliculare
 Peronospora Sambuci
- Koeleria cristata** (L.) Pers.
 Puccinia Koeleriae
 P. monilia
- Lactinaria**. see *Liatris*
- Lactarius** spp.: see also Agaricaceae
 Hypomyces rosellus
 Peckella vinda
 Verticillium Lactarii
- Lactuca pulchella** (Pursh) DC.
 Bremia Lactucae
 Oryzaria Cardetiae
 Puccinia extensicola var. heterostata
 P. minuscula
- Lactuca sativa** L., cult.
 Botrytis cinerea
 Bremia Lactucae
 Puccinia extensicola var. heterostata
 Sclerotinia sclerotiorum
- Laportea canadensis** (L.) Gaud.
 Ramularia Urticae
 Septoria Urticae
 old stems: Calonoma fusarioides
 Cylindrocolla Urticae
 Phoma nebulosa
 Pyrenopeziza compressula
- Lappula deflexa** (Wahlenb.) Greville
 Erysiphe Cichoracearum
 Ramularia Lappulae
- Lappula echinata** Gilbert
 Cercospora Lappulae
 Erysiphe Cichoracearum
 Peronospora Echinospermi
 Puccinia Aristadae
- Larix laricina** (Du. Roi) Koch
 Meampora Bigelowii
 branches: Lophium mytilinum
 Peronospora alutaria
- Lathyrus maritimus** (L.) Bigel.
 Septoria Astragalii
- Lathyrus ochroleucus** Hook.
 Septoria Astragalii
 Uromyces Fabae
- Lathyrus odoratus** L., cult.
 Beauveria Lathyri
 Erysiphe Polygoni
 Fusarium Equiseti
 F. Solani var. Martii
 Microsphaera diffusa
 Rhizoctonia Solani
- Lathyrus venosus** Muhl.
 Cercospora Lathyri
 Erysiphe Polygoni
 Septoria Astragalii
 Uromyces Fabae
 old stems: Leptosphaeria dolium
 Lecanium sp. (insect)
 Coelogyne clavulata
- Ledum groenlandicum** Oeder
 Chrysomyxa Ledii
 C. sebecula
 Elaphoglossum Ledii
 Eriophorum Ledii
 old stems: Clitris lactea
 old leaves: Lophodermium sphaeroides
- Leontine** sp. see Agaricaceae
- Leontodon**: see Taraxacum
- Lepargyrea**: see Shephardia
- Lepidium apetalum** Willd.
 Albugo candida
 Peronospora Lepidii-ruginiae
 Septoria lepidocolla
- Lepidium Draba** L.
 Cercospora Bizzosseriana
- Lepidium Fletchieri** Rydb.
 Puccinia Aristadae
- Lepidium sativum** L., cult.
 Peronospora Lepidii-sativi
- Leptilon**. see Erigeron
- Liatris aspera** (Michx.) Greene
 Puccinia Liatridae
 Septoria Liatridae
- Liatris ligulistylis** (A. Nels.) Rydb.
 Liatris punctata Hook.
 Puccinia Liatridae
- Lichens**
 Illosporium roseum
 Sclerotium lichicola
- Lilium philadelphicum** L. var. *andinum*
 (Nutt.) Ker
 Puccinia Sporoboli
- Lilium** sp. cult.
 Botrytis cinerea
 B. parvula

- Linnaea borealis** L. var. *americana*
(Forbes) Rehd.
Halticaria Linnaea
Venturia Didoti
- Linum lewisii** Pursh
- Linum rigidum** Pursh
Melampsora Lini
- Linum usitatissimum** L., cult.
Fusarium Lini
Melampsora Lini
Puccinia Lini
Pythium delbarianum
Rhizoctonia Solani
- Lonicera canadensis** Marsh.
Glomerularia Lonicerae
Ingr: Cercospora mansuetibialis
- Lonicera glaucescens** Rydb.
Cercospora antipus
Microsphecia Alni
Septoria Xylotiei
- Lonicera Sullivanii** Gray
Cercospora antipus
Microsphecia Alni
- Lonicera tatarica** L., cult.
Glomerularia Lonicerae
Microsphecia Alni
Ingr: Sphaeropsis rosata
- Luzula campestris** (L.) DC. var. *multiflora*
(Ehrh.) Celak
Puccinia olacura
- Lychnis chalcedonica** L., cult.
Phyllosticta Lychnidis
Septoria Lychnidis
- Lychnis Haageana** Lemire, cult.
Septoria Lychnidis
- Lychnis** sp. cult.
Phyllosticta Lychnidis
- Lycopersicon esculentum** M.H., cult.
Alternaria Solani
Botrytis michiganense
Cladosporium fulvum
Corticium Solani
Fusarium Equiseti
F. Scirpi var. filiferum
Nigrospora sphaerica
Phoma destructiva
Rhizoctonia Solani
Septoria Lycopersici
- Lycopus lucidus** Turcz. var. *americanus*
Gray
Puccinia angustata
- Lygodesmia juncea** (Pursh) D. Don
Puccinia extensicola var. hieracista
P. Grandisae
P. Stipae
- Lythamachia thyrsiflora** L.
Puccinia Lamocae
- Malanthemum canadense** Desf.
Cercospora subaequalis
Puccinia amphigena
P. scutell
Uromyces acuminatus var. magnatus
- Malva rotundifolia** L.
Cercospora Malvarum
Puccinia Malvarum
Septoria malvica
- Malva** sp. cult.
Puccinia Malvacearum
- Malvastrum coccineum** (Pursh) Gray
Puccinia Sherardiana
- Marr:** see p. 141
- Medicago sativa** L., cult.
Ascochyta Medicagoe
Fusarium avenaceum
Peronospora asativae
Pseudoperiza Medicagoe
Pseudopsis Trifolii
Pyrenopeziza Medicagoe
Sclerotinia sclerotiorum
Uromyces striatus var. Medicagoe
old stems Humaria testacea
Oedoecephalum glomerulosum
Phiala cyathoides
- Melanoplus bivittatus** Say (insect)
- Melanoplus infantalis** Scud.
- Melanoplus marianus** Saum.
- Melanoplus packardii** Scud.
Empusa Grylli
- Melilotus alba** Desr., cult. and escaped
Cercospora Davina
Fusarium avenaceum
F. Solani
Fleisodorus Meliloti
Pseudoperiza Medicagoe
Stagonospora Meliloti
- Melilotus officinalis** (L.) Lam., cult. and escaped
Stagonospora Meliloti
- Melilotus** sp. cult.
Fusarium Equiseti
F. Peae
F. Scirpi var. acuminatum
old stems Ophiobolus porphyrogenus
Phiala cyathoides
Pyrenopeziza calvosa
Scopulariopsis brevicaulis
- Menispermum canadense** L.
Cercospora Menisperm
Entyloma Menisperm
Phyllosticta abortiva
old stems Diplodia sarmentorum
Phoma Menisperm
Sphaeropsis Menisperm
Vala Menisperm

- Mentha arvensis** L. var. *canadensis* (L.)
Briquet
Erysiphe Cichoracearum
Ramularia variata
- Mentha glabrior** (Hook.) Rydb.
Erysiphe Galeopsidis
Puccinia angustata
P. Menthae
Ramularia menthaecola
Septoria menthaecola
- Mentha** sp., *old stems*
McLusit atrocinerea
- Menyanthes trifoliata** L.
Phyodermis Menyanthes
Septoria Menyanthes
- Mercurialis** see *Oenothera*
- Mertensia paniculata** (Ait.) G. Don
Erysiphe Cichoracearum
- Micranthes** see *Echinocystis*
- Mimulus ringens** L.
Septoria Mimuli
- Mitella nuda** L.
Puccinia Heisteriae
- Moslingia** see *Arenaria*
- Moldavica** see *Dracopis*
- Monarda fistulosa** L.
- Monarda menthaefolia** Benth.
Puccinia Menthae
- Monolepis Nuttalliana** (Roumer & Schult.)
Watsch
Albugo Buti
- Mosses**
Cyphella galata
C. muscigena
Sclerotium Muscorum
- Mucorales**
Chaetocladum um Buefeldii
Piptosporium Friesianum
- Muhlenbergia cuspidata** (Torr.) Rydb.
Phyllachora graminea
- Musca domestica** L. (house fly)
Empusa Muscae
Fusarium Foveae
- Myrica gale** L.
Crocotium Comptoniae
Ocularia destructiva
- Nabalus** see *Prenanthes*
- Naumburgia** see *Lysimachia*
- Nematodes**
Harposporium Anguillulae
- Nemania lasioneuron** (Hook.) Rydb.
Puccinia amphigena
- Neslia paniculata** (L.) Desv.
Albugo canadica
Cercospora Nesliae
- Noria** see *Sisymbrium*
- Nymphaea advena** Ait.
Erythraea Nymphaeae
Phyllosticta fatiscens
old leaf Sphaerobolomyces roseus
- Oenothera biennis** L.
Erysiphe Polygona
Peronospora Arthuri
Puccinia oenothericola var. *Oenotherae*
Septoria Oenotherae
- Oenothera strigosa** Rydb.
Peronospora Arthuri
- Oligoneuron** see *Salidago*
- Onocladum occidentale** Mackenzie
Puccinia rogers-vera var. *apocrypta*
- Oryzopsis asperifolia** Michx.
Phyllachora graminis
Puccinia pygmaea
- Osmorhiza longistylis** (Torr.) DC.
Cercospora Osmorhizae
Philocarpa Aegopodi
Puccinia Pimpinellae
old stems Colletotrichum Dematium
- Oxytropis Belli** (Britt.) Pilbeam
Sphaeria Astragali
- Oxytropis gracilis** (A. Nels.) K. Schum.
Uromyces punctatus
- Padus** see *Prunus*
- Paconia officinalis** Rots., cult.
Botrytis cinerea
B. Paconiae
Cladosporium Paconiae
- Paconia** sp. cult.
Phyllosticta Commersoniae
Septoria Paconiae
old stems Phoma Paconiae
- Panicularia** see *Glyceria*
- Panicum miliaceum** L., cult.
Sclerotium Panici-miliaceum
- Parnassia palustris** L.
Puccinia uliginosa
- Parthenocissus** see *Paedera*
- Pastinaca sativa** L., cult.
Cercospora Pastinacae
Cylindrosporium croceum
Ramularia Pastinacae
Sclerotium pastinacorum
- Paxillus** see *Agaricaceae*
- Pelargonium zonale** Willd.
Botrytis cinerea
Pythium deBaryanum var. *Pelargoneae*
P. altissimum
- Pentstemon acuminatus** Dougl.
Puccinia Andropogoni var. *Pentstemonis*
Septoria pentstemonitica
- Pentstemon albidus** Nutt.
- Pentstemon oriantherus** Pursh

- Pentstemon nitidus** Dougl.
Puccinia *Andropogonis* var. *Pentstemonis*
- Puccinia** see *Polygonum*
- Petalostemum candidum** Michx.
Puccinia *Andropogonis* var. *Onobrychidis*
Synchytrium aureum
- Petalostemum purpureum** (Vent.) Rydb.
Puccinia *Andropogonis* var. *Onobrychidis*
- Petalostemum oligophyllum** (Torr.) Rydb.
Uromyces *Petalostemonis*
- Petasites palmatus** (Alt.) Gray
Puccinia *oenotherae*
Ranunculus *variegatus*
Stagonospora *Petasidis*
- Petasites sagittatus** (Pursh) Gray
Phyllosticta *Petasidis*
- Petunia hybrida** Vilm., cult.
Erysiphe *Cichoracearum*
- Phaseolia Franklinii** (R. Br.) Gray
Puccinia *rubigo-vera* var. *spontotypa*
- Phalaris arundinacea** L.
Claviceps *purpurea*
Cylindrosporum *Phalaridis*
Puccinia *graminis*
P. *serotilis*
Pythium *arthenomanes* var. *canadensis*
Rhynchosporium *Secalis*
- Phalaris canariensis** L., cult.
Puccinia *graminis*
- Phaseolus vulgaris** L., cult.
Colletotrichum *Lindemuthianum*
Fusarium *equiseti*
F. *Solanii*
Pseudomonas *Phaseoli*
- Phleum pratense** L., cult. and escaped
Claviceps *microcephala*
Erysiphe *graminis*
Heterosporium *Phlei*
Puccinia *graminis* var. *Phleu-pratense*
Pythium *arthenomanes* var. *canadensis*
Scoleotrichum *graminis*
Ustilago *stridiformis*
- Phlox Drummondii** Hook., cult.
Septoria *d. varicosa*
- Phlox Hoodii** Richards
Puccinia *Douglasii*
- Phlox** sp. cult.
Uromyces *acuminatus* var. *Polemoni*
- Phoenix canariensis** Chabod., cult.
Graphiola *Phoenixis*
- Phragmites communis** Trin.
Bedotrichum *Ensare*
Napellidium *arundinaceum*
Puccinia *Magnusana*
P. *Phragmitis*
steys *Graphyllum macrobiense*
Hendersonia *arundinacea*
- Phragmites communis** Trin.--Cov.
Lophostoma *Arundinis*
Mollisia *arundinacea*
Popularia *sphaerosporea*
- Physalis heterophylla** Nees
Puccinia *Physalis*
- Physalis lanceolata** Michx.
Alternaria *Solanii*
Entyloma *veniale*
- Physalis virginiana** Mill.
Puccinia *Physalis*
- Physostegia virginiana** (L.) Benth
Septoria *Physostegae*
- Picea canadensis** (Mill.) B.S.P. (*P. glauca*)
Chrysomyxa *ledicola*
C. *Fyricola*
Melampsorella *Cerastii*
steys *Hysterium acuminatum*
Schizotylon *sepiicola*
wood *Piceae pinicola*
Hypochnus *fumosus*
H. *rubiginosus*
Polyporus *mutatis*
P. *Schweinitzii*
P. *volvatus*
Poria *candidissima*
- Picea mariana** (Mill.) B.S.P.
Chrysomyxa *ledii*
C. *ledicola*
Melampsorella *Cerastii*
- Picea** spp.
steys *Dasytypha arida*
Nectria *cucurbitula*
bark *Badhamia populina*
Piniophora *piceina*
Schizium *calceae*
Stereum *sanguinolentum*
wood *Coniophora arida*
C. *hyssoides*
C. *cumbella*
C. *olivacea*
C. *sulfurea*
Corticium *abietinum*
C. *Berkleyi*
C. *fenestratum*
C. *pelliculare*
C. *subconcomatum*
C. *vagum*
Cratichneum *dictyodes*
Didymium *melanospermum*
Fomes *Piceae* var. *Abietis*
Hymenochaete *tenax*
Hypochnus *coriarius*
H. *pannosus*
H. *spongiosus* var. *spiniferus*
Lophium *mytilium*
Merulius *aureus*

Picea spp.—*Con.*

- Peniophora olivaria*
P. canosca
P. glebulosa
P. livida
Physarum nutans
conar: *Ciboria rufifusca*
old needles: *Helotium sulphuratum*

Pileobolus sp.

- Syncephalus nodosus*

Pinus *Banksiana* Lamb.

- Coleosporium Solidaginis*
Conartium Comandrae
C. Comptoniae
Hypocermella amplis
Leptostroma Pinastri
Lophodermium Pinastri
see Walcottella
branches: *Dasythyria Pin.*
Marasmius campanellus
bark: *Cocciophora hymenaea*
C. Kalmiae
Corticium botryoscedum
C. vagum
Patella punctiformis
Peniophora cinerea
Tremella saccharina var. *foliacea*
wood: *Corticium pelliculare*
Laurospheeria ovata
Lophium mytilinum
Hypochnus canadensis
H. ectinosporus
H. fumosus
H. ambrosius
Merulius aureus
M. fugax
Pachysporium pyramidale
Peniophora coccinea
P. glebulosa
P. tenuis
Thelophora terrestris
old needles: *Marasmius andromedae*

Pinus contorta Dougl. var. *Murrayana*

- (Ball) Engelm.
Hypocermella concolor

Pinus sp.

- Conartium Quercuum*
wood: *Coniophora suffocata*
Crepidotus nidulans
Fomes pinicola

Pisum sativum L., cult.

- Ascochyta Pis.*
Colletotrichum Pis.
Erysiphe Polygona
Fusarium Solani var. *Martii*
Pseudomonas Pis.
Septoria flagellifera

Pisum sativum L., cult.—*Con.*

- S. Pis.*
Uromyces Fabae

Plantago eriopoda Torr.

- Puccinia Aristidae*

Plantago major L.

- Erysiphe Cichoracearum*
Peronospora alba
Phyllactinia Plantaginis
Septoria plantaginis var. *Plantaginis-majoris*

Pleurotus sp.

- Cladosporium epimyces*

Poa arida Vasey

- Puccinia rubro-virens* var. *Agropyri*

Poa compressa L.

- Erysiphe graminis*

Poa erecta Moench.

- Uromyces Dactylidis*

Poa nemoralis L.

- Erysiphe graminis*

Poa palustris L.

- Erysiphe graminis*
Puccinia Poae-sudeticae

Poa pratensis L., cult. and escaped

- Claviceps purpurea*
Colletotrichum graminicola
Erysiphe graminis
Puccinia Poae-sudeticae
Uromyces Dactylidis
Ustilago striiformis
old leaves: *Pitillaria culmigena*

Polygala Senega L.

- Puccinia Andreopogonis* var. *polygalina*

Polygonum amphibium L. var. *Hartwrightii* (Gray) Bissl.

- Puccinia Polygoni-amphibii* var. *Pennsylvanica*

Polygonum aviculare L.

- Cercospora avicularis*
Erysiphe Polygoni
Uromyces Polygoni

Polygonum buxiforme Small

- Uromyces Polygoni*

Polygonum cilinode Moench.

- Ramularia cilinodes*
Ustilago anomala

Polygonum convolvulus L.

- Puccinia Polygoni-amphibii* var. *Convolvuli*

Polygonum erectum L.

- Cercospora avicularis*
Erysiphe Polygoni
Orcularia avicularis
Puccinia Aristidae
Ramularia rufomaculans
Uromyces Polygoni

Polygonum Muhlenbergii (Meis.) Watson

Puccinia Polygoni-amphibi var *Pern*
carisei

Ramularia anomala

R. rufomaculosa

Polygonum neglectum Boerh

Erysiphe Polygoni

Puccinia Aristidae

Polygonum Persicaria L.

Septoria Polygonorum

Ustilago atriculis

Polygonum ramosissimum Michx**Polygonum rubescens Small**

Uromyces Polygoni

Polygonum sagittatum L.

Gaeosporium Polygoni

Polygonum spp., old stems

Metasphaeria Polygoni-sagittati

Phaeoia scutula

Polyperacaea, old

Calium polyperacum

Dactylidium dendroides

Hypoeris citrina

H. pallida

Hypomyces aurantiatus

H. rosellus

Oxyentia albaviride

Populus angustifolia James

Septoria populicola

Uromyces Salicis

Populus balsamifera L.

Cladosporium balsamiferae

Marasmius Castagnei

Mezasporea Medusae

M. occidentalis

Phyllosticta brunnea

Sclerotium bifrons

Septoria muhlenbergii

S. populicola

Uromyces Salicis

branches *Cucurbitaria stipitata*

Dichaena Populi

Valsa rupestris

bark *Caenophthora exilis*

Swietenia callosa

wood *Corticium fenestratum*

Fomes populicola

Polyporus adustus

P. pergametis

Trametes hispida

leaf scales *Lachnum virginicum*

old leaves *Pistillaria clavulata*

Populus deltoides Marsh.

Mezasporea Medusae

branches *Cytospora chrysosperma*

Populus tremuloides Michx

Cladosporium subessale

Cytospora chrysosperma

Fomes agilis

Punctidium radicosum

Hypoxylon pruinatum

Marasmius Castagnei

Myrocarum comitatum

Phyllosticta brunnea

Sclerotium bifrons

Septogloeum rhopalodeum

branches *Cryptosphaeria populina*

Melanconium caeruleum

Stictis curtispora

Teliospora prunifera

Valsa rupestris

bark *Botryophoma populicola*

Butyrus lata

wood *Dactyloctenium aeneum*

Fomes fenestratus

F. pinicola

Odontia fimbriata

Polyporus adustus

P. hispidus

P. pergametis

P. velutinus

Rosellina pulveracea

Trametes hispida

leaves *Cibetia canescens*

Populus spp.

Phyllosticta intermixta

branches *Corticium costellare*

Didymella canadensis

Fenestella phaeospora

Fusicium spectrichioides

Lophium compressum

Lophiostoma triseptatum

L. vestitum

Oestropia cinerea

Stereum rufum

Suetia mollis

S. radiata

Trimecanostroma americanum

Valaria isolata

bark *Acanthostigma Clintoni*

A. dispar

Amphisphecia bispharica

Arctia cinerea

A. donusta

A. ferruginea

Botrytis cinerea

Cenangium populinum

Chaetomyces aurantiacus

Corticium botryoides

C. crustaceum

C. polygonum

Daldinia glandula

Populus spp.—Con.

Dicraneta Harveyi
Didyma Chondriodermis
Eichornella spinulosa
Eotypa Atharü
Exidia glandulosa
Fuligo intermedia
Helicoma Berkeleyi
H. monilipes
H. olivaceum
Meliomyces gracilis
Homocelia alba
Hyalopez ochnosorus
Hypoecia rufa
Hypoxylon Howeianum
Lachnella corticola
Naematelia naselata
Pezizophora mutata
P. picta
P. velutina
Pezizocoma corticola
Phucta strigosocornata
Putia borealis
P. corticola
P. eupora
P. reticulata
P. rhodella
Scopularia Populi
Tectospora obdusca
Tuber candidum
Tympana spermatospora
 wood: *Aleurodiscus cerussatus*
Amphiphyscia albomaculata
Areyria occidentalis
Budicium magna
B. parvum
B. stricaria
Caldesiella ferruginea
Calocera cornu
Catinella nigro-olivacea
Cerastostoma brevirostre
Chaetosphaeria atrobarba
Chroosplenium aeruginosum
Cienkowskia reticulata
Comatrichia floccida
Comophora hyssocidea
C. oreobolia
C. olivacea
C. suffocata
Coprinus apothecus
Corticium arachnoideum
C. flavescens
C. lactescens
C. luridum
C. peccatum
C. rubellum
C. vellereum

Populus spp.—Con.

Coryna sarcoides
C. sarcoides var. *uralis*
Crepidotus calulapir
C. cinnabarinus
C. fulvotomentosus
C. hirsutus
C. herbarum
C. sepiarius
Cyphella fasciculata
C. minutissima
Desmazierella echinata
Diatrype bulata
Didymum crustaceum
D. melanosporeum
Dinemosporium Betulae
Flammula almeida
Fomes appplanatus
F. ignarius var. *nigricans*
Grandinia Brinkmannii
Helotium citrinum
H. virgultorum
Hemitelia stipitata
Humaria trachyderma
Hymenochaete cinnamomea
Hypochnus canadensis
H. cornutus
H. ochroleucus
H. ferrugineus
H. fumosus
H. imbellicus
H. pallidoflavus
H. pannosus
H. pilosus
H. rubiginosus
H. umbrinus
Hypoxylon rubiginosum
H. serpens
Hysteroglyphum Mori
Lanophaeria canescens
L. hirsuta
L. hispida
L. ovina
L. spermatoides
L. strigosa
L. viridissima
Lentinus sulcatus
L. vulpinus
Lenzites betulina
Microtilia tremellosus
Mollisia cinerea
Nectria lignicola
Nectria Psita
Odocoia arguta
O. bicolor
O. crustacea
O. fusco-atra

Populus spp.—Con.

O. lactea
O. setigera
O. alba
Orbilia xanthostigma
Panus stypticus
Patella lotos
Patellaria atrata
Perisporia A.leschen
P. crassa
P. guttulifera
P. longipora
P. pubera
Periselia validiflavescens
Pholcia squarrosoides
Physarum auriscalpium
P. lectum
P. contextum
P. globosiferum
P. notabile
P. nutans
P. oblatum
P. viride
Pleurotus craspedius
P. cetratus
P. pulmonarius
Polyporus albellus
P. annularius
P. floriformis
P. glomeratus
P. semipileatus
P. rubchartaceus
Poria ambigua
P. punctata
P. purpurea
P. seminata
P. versipex
Porothecium fimbriatum
Propolis faginea
Radicium casearium
R. spathulatum
Rosellina parvifolia
Sacrobolus pinicola
Sclerophyllum commune
Steccherinum ochraceum
Stereum constrictum
S. fasciatum
S. fuscum
S. purpureum
Tachospora fuliginea
T. populina
Trametes malicicola
Tremula viciosa
Trichia conferta
T. inaequalis
Zignoella pulviscula
 codrini: *Helotium arvense*

Populus spp.—Con.

fulva Levesq. *Distasia arthrospora*
Helotium epiphyllum
Marcasium epiphyllum
Selestinum compactum
Typhula fusiformis
Portulaca oleracea L.
 Albigo *Portulacae*
Potamogeton heterophyllus Schreb.
Potamogeton natans L.
Dumetia Martensiana
Potentilla anserina L.
Ranularia arvensis
Potentilla bipinnatifida Dougl.
Mollisia Dehm.
Phragmidium lutescens
P. Potentillae
Potentilla fruticosa L., native and cult.
Phragmidium Andersoni
Potentilla glaberrima Rydb.
Potentilla hippiana Lehm.
Phragmidium Potentillae
Potentilla monspeliensis L.
Mollisia Dehm.
Peronospora Potentillae
Ranularia arvensis
Potentilla Nuttallii Lehm.
Phragmidium lutescens
Potentilla palustris (L.) Scop.
Septogloeum Potentillae
Potentilla pennsylvanica L.
Potentilla strigosa Pall.
Phragmidium Potentillae
Potentilla tridentata Ait.
Pucciniastrum Potentillae
Prenanthes alba L.
Puccinia extensicola var. *hieraciata*
Septoria Nabell
Prenanthes racemosa Michx.
Puccinia extensicola var. *hieraciata*
P. orbicula
Prunella vulgaris L.
Septoria Prunellae
Prunus americana Marsh.
Cylindrosporium pruniphloeae
brunnea: *Fomes fulvus*
Prunus Besseyi L. H. Bailey, native and cult.
Bacillus amylovorus
Cytospora ambiens
Podosphaera Oxyacanthae
Sclerotinia fructicola
Taphrina deformans
Tuberularia vulgaris
brunnea: *Clasterosporium carpophilum*
Micropera drupacearum
Valsa ambiens
Valsella Laschii

***Prunus melanocarpa* (A. Nels.) Rydb.**

Dibotryon morbosum
Nectria cinnabarina
Podospaera Oxycanthae
Sclerotinia fructicola

Branches: *Diastype stigma*

***Prunus nigra* Alt., cult.**

Bacillus amylovorus
Cylindrosporium prunophorum
Sclerotinia fructicola
Taphrina communis

Branches: *Diastype Prun.*

Micropera drupacearum
Polyporus pubescens
P. tulipiferus
P. versatilis
Valsa ambigua

old pits: *Sporotrichum leptosphaerioides*

***Prunus pennsylvanica* L. f.**

Cylindrosporium lunale
Dibotryon morbosum
Taphrina mutilans

***Prunus pumila* L.**

Dibotryon morbosum
Podospaera Oxycanthae

***Prunus virginiana* L.**

Cylindrosporium lutescens
Dibotryon morbosum
Phyllosticta virginiana
 see *Sporotrichum parveticum*

Branches: *Cenangium populeum* var. *prunicola*

Diastype alboprunosa
Diastypella verrucosiformis
Diplous Prun.
Phoma Prun.

Tachospora insectis

***Prunus* spp., native and cult.**

Cladosporium carpophyllum
Phyllosticta circumscissa
Pseudomonas tumefaciens
Trichothecium roseum

Branches: *Botryosphaeria fuliginosa*

Cartium crustaceum
Cytospora leucostoma
Massaria conspurcata
Melanconium coccineum
Nectria cinnabarina
Porus prunicola
Rosellina lignaria
Schaefferia usque
Solenia anomala
Sphaerographium n. revum
Sphaeropsis Malorum
Stereum purpureum
Valsa cincta
V. leucostoma

***Rododendron quinquefolium* (L.) Greene, native and cult.**

Cercospora arborescens
Phyllosticta viticola
Uncinula necator

***Rosa argophylla* Pursh**

Dicranum Rosaceae
Septoria argophylla
Uromyces Rosaceae var. *argophyllae*

***Rosa esculenta* Pursh**

Gloeosporium Rosaceae

***Rosa laevigata* Pursh**

Uromyces Rosaceae var. *typica*

***Rosa rugosa* (Michx.) Nasui**

Taphrina Struthopteridis
Uromyces Struthopteridis
old fronds: *Cyphella aspera*

Dactyloctenium aegyptium

Leptothrium litigiosum

Solenia filicina

***Pteridium latiusculum* (Desv.) Maxon**

Cryptomyces Pteridis

Puccinellia nutkensis* (Perr.) Fern. & Westh.**Puccinellia tenuiflora* (Griseb.) Scrib. & Merr.**

Puccinia rubro-vega var. *Agropyri*

Puccinia* see *Uredinales***Pulsatilla* see *Anemone******Pyrola asarifolia* Michx.**

Chrysomya Pyrolae
Puccinellia Pyrolae

Pyrola chlorantha* Swartz**Pyrola elliptica* N. B.**

Puccinellia Pyrolae

***Pyrola rotundifolia* L.**

Chrysomya Pyrolae
Puccinellia Pyrolae

***Pyrola* sp.**

Sphaeria Pyrolae

***Pyrus americana* (Marsh.) DC.**

Gymnosporangium americanum

***Pyrus baccata* L. cult.**

Bacillus amylovorus
Puccinellia dendriticum
Sphaeropsis Malorum

Branches: *Cytospora ambigua*

Dactyloctenium aegyptium

Diastype stigma

Diastypella irregularis

Eutypa adibunda

Hypoxylon Morsci

Menophora leucostoma

Phleba strigosocoma

Polyporus tulipiferus

P. versatilis

Sclerophyllum commune

Pyrus baccata L., cult. —Con.

Stereum purpureum
Tuberularia vulgaris
Valsa ambigua
V. angustata

Pyrus Malus L. cult.

Penicillium expansum
Tronch. Cereusum avari

Pyrus sp.

Cosmolumma pyrinum
Eriocarpium maculatum
Gymnosporangium clavipes

Quercus dentata Thunb., cult.

Taphrina eschscholae

Quercus macrocarpa Michx.

Masseeana Martini
Microspizera Alni var. *calceatrophora*
Phyllosticta levula
P. pbeniformis
Taphrina castanea

Tronch. Cereusum Kensei

C. pustulatum
Dasyarpha corina
Disporthe talonia
Diatrype stigma
Didymosphaeria diplospora
Encospora amorphia
F. princeps
Helminthosporium macrocarpum
Hymenochaeta Curtisi
Metasphaeria quercus
Oestrus tucres
Perisporia eucera
Pestalotia lucida
Valsa amara
Valsa dentata

Tronch. Cereusum aceris

A. griseocanus
Amphisphaeria appulata
Curatium confusum
C. crustaceum
C. rubellum
Stereum gausapellum
Tectospora obscurus

Tronch. Cereusum septentrionale

Patellaria hepatica
Helminthosporium fusiforme
Phoma stylacea
Patellaria sanguinea
Perisporia pubera
Polyporus brunnus
P. placidus
P. resinatus
P. versicolor
Propolis fugiosa
Rosellina aquatica

Quercus macrocarpa Michx.—Con.

Tronch. Cereusum pusillum
Helminthosporium frugigenum
Sclerotinia pseudotuberosa
Tollen limes. Cylindrium aeruginosum
Cymbella trachyseta
Dicella arctocera
Helotium albidum
Martensia epiphylla
M. felix
Sclerotinia caudoleuca

Radicula Armoracia (L.) B. L. Robinson,

cult. and escaped

Ramularia Armoraciae

Radicula palustris (L.) Moench.

A. hugo candida

Ranunculus abortivus L.

Ascochyta infusans
Puterea Thibautiae

Ranunculus Cymbalaria Pursh.

Puterea rubigo-vera var. *Agropyri*

Ranunculus delphinifolius Torr.

Dicella arctocera

Ranunculus Macounii Britt.

Entyloma Ranunculi
Uromyces Alopecuri

Ranunculus pennsylvanicus L.

Fabricia Ranunculi

Ranunculus sceleratus L.

Uromyces Alopecuri

Raphanus sativus L., cult.

A. hugo candida

Rhamnus alnifolia L. Her.

Careospora Rhamni
Puterea cuneata

Rhamnus cathartica L., cult.

Puterea coronata

Rheum Rhabarbarum L., cult.

Ascochyta Rhei
Colletotrichum erumpens
Peronospora Jaegeri
Phoma rhabarbarum
Phyllosticta straminea
Puterea Phlegmaria

Rhus glabra L.

Sphaerosticta Hamuli

Rhus Toxicodendron L.

Cercospora rhodina
Cy. nurosporum Toxicodendri
Phyllosticta rhodina
Puccinia Toxicodendri

Ribes aureum Pursh, cult.

Gloeosporium Ribis
Septeria aurea
Uromyces Thymocetia berolensis
Sphaeropsis ribicola

Ribes floridum L'HérPuccinia Caricis var. *grosulariata*

Septoria Ribis

Sphaerotheca mors-uvae

stems: Dothidea ribeae

Mastomyces Fritsch

Metasphaeria leostegae

Thyridium antiquum

Thyronectria berolinensis

Ribes Grosularia L., cult.

Pseudopeziza Ribis

Puccinia Caricis var. *grosulariata*

Septoria Ribis

stems: Thyronectria berolinensis

Ribes hudsonianum Richards.

Sphaerotheca mors-uvae

Ribes lacustre (Pers.) Poir

Puccinia Parkeri

Ribes nigrum L., cult.

Alternaria fasciculata

Gloeosporium Ribis

Puccinia Canae var. *grosulariata*

Septoria Rubi

Sphaerotheca mors-uvae

Ribes oxycanthoides L.

Plasmopara ribicola

Puccinia Caricis var. *grosulariata***Ribes saxosum** Ludl.Puccinia Caricis var. *grosulariata***Ribes triste** Pallas

Puccinia Ribis

Ribes vulgare Lam.

Pseudopeziza Ribis

Septoria Ribis

stems: Dothidea ribeae

Fomes Ribis

Sphaeropsis ribicola

Thyronectria berolinensis

Tubercularia vulgaris

Ribes sp., stems

Godronia ureocaulis

Lachnum bicolor

Nectria cinnabarina

Sebacina calcea

Sphaeroglyphium nivium

Roripa: see *Radicula***Rosa acicularis** Lindl.

Phragmidium Rosae-acicularis

Rosa blanda Ait.

Phragmidium montivagum

Sphaerotheca Humuli

stems: Phomatopora Rosae

Rosa Macouni Greene

Phragmidium Rosae-acicularis

P. speciosum

Rosa spp.

Aclonemum Rosae

Ceroaspora rosicola

Phragmidium diversiflorum

P. Rosae-arkansensis

P. rosicola

Sphaerotheca Humuli

stems: Cytospora ambigua

Diatrype stigma

D. trisetosa

Didymosphaeria diplospora

Lophostoma trisetatum

Metasphaeria leostegae

Pseudomonas tunefaciens

Sphaerotheca Humuli

Tapeta Rosae

old leaves: Diplocarpon Rosae

Discosia arctocressae

Rubus acutifolius Michx.**Rubus arcticus** L.

Gymnospora Peckiana

Pucciniastrum arcticum

Rubus idaeus L. var. *aculeatissimus* (C. A.

Mey.) Regel & Tiling

Botrytis cinerea

Didymosphaeria mammosperma

Stigmata rubicola

Rubus idaeus var. *strigosus* Maxim., cult.

Cenothyrium Fuckelii

Didymella appianata

Gloeosporium venetum

Leptospheria Cenothyrium

Metasphaeria leostegae

Phragmidium Rubi-idae

Septoria Rubi

Sphaerotheca Humuli

Rubus melanolasius Focke

Phragmidium Rubi-idae

Septoria Rubi

Rubus triflorus Richards.

Gymnospora Peckiana

Phyllosticta Dearnessii

Pucciniastrum arcticum

Septoria Rubi

Sphaerotheca Humuli

old leaves: Discosia arctocressae

Rudbeckia laciniata L.

Erysiphe Cichoracearum

Phyllosticta Rudbeckiae

Plasmopara Halstedii

Ramularia Rudbeckiae

Septoria Rudbeckiae

Uromyces perigynus

U. Rudbeckiae

stems: Colletotrichum Rudbeckiae

- Rudbeckia laciniata** var. **hortensis** L. H. **Salix** spp., native and cult.—*Can.*
 Bailey, cult.
Sclerotinia sclerotiorum
- Rumex crispus** L.
Ranularia decipiens
- Rumex mariscanus** Moench.
Puccinia Phragmitis
- Rumex occidentalis** Watson
Puccinia ornata
P. Phragmitis
- Rumex venosus** Pursh
Ranularia decipiens
- Russula** spp., old
Cladosporium epimyces
Footella viridis
Sporodinia grandis
Verticillium Lactarii
- Sabina** see *Juniperus*
- Sagittaria arifolia** Nutt.
Dossanisia intermedia
D. Sagittariae
- Sagittaria latifolia** Willd.
Cercospora Sagittariae
Gloeosporium conflans
Dossanisia deformans
D. furva
D. intermedia
D. Sagittariae
Fusarium Scirpi var. *acuminatum*
Rhynchosporium Alleniatae
- Salix amygdaloides** Anders.
Melanconia Bigelovii
 bark *Alcurodiscus cerussatus*
 wood *Peniophora Roumeguierii*
- Salix brachycarpa** Nutt.
- Salix candida** Fungus
- Salix cordata** Muhl.
Melanconia Abies-capreae
- Salix herbacea** L.
Melanconia Bigelovii
- Salix pentandra** L.
Cytospora elrythrae
- Salix** spp., native and cult.
Cercospora salicina
Gloeosporium Salicis
Melanconia sp.
Melanconia Bigelovii
Ranularia rosea
Rhytisma salicinum
Septoria salicina
Uromyces Salicis
- twigs: *Cytidia salicina*
Cytospora ambigua
C. Capreae
Disporthe trussella
Distrype alhopruinosa var. *salicina*
D. stigma
- Didymella canadensis*
Diplodia Salicis
Farcula canadensis
Hestium salicellum
Lophostoma eorum
L. semiclavatum
L. triseptatum
Macrophoma Salicis
Ocellaria ocellata
Ostrops cinerea
Peniophora cinerea
Pleospora herbarum
Sphaerographium nereum
Stereum rufum
Tescheospora inaequa
T. megastega
Truncostroma americanum
Valsa ambigua
V. borealis
V. pallida
V. salicina
V. transmontana
- bark: *Alcurodiscus cerussatus*
Chromocera gelatinosa
Coriaria crustaceum
Eutypa Acharii
E. lata
Exidia glandulosa
Leptospheria consimilis
Phoma vulgaris
- wood: *Chlorophyllum sarciniforme*
Corticium roseum
C. villertianum
Daedalea amara
Fomes igneus
Hymenochaete curvatus
Rhytographium Men
Rhytospheria elliptica
Lecanospheria hirsuta
L. ovina
Melissa cinerea
Odozia argata
Oligonema nitens
Peniophora globulosa
P. guttulifera
P. longispora
P. pebena
P. Sumbui
Peridermium viridiflavescens
P. xylita
Polyporus arcularius
P. dichrous
P. gilvus
P. melanopus
P. tulipiferus
P. volutus

Salix spp., native and cult. — Cos.

Poria ferruginosa
P. punctata
P. viticola
Rhodina mamilliformis
Stereum versiforme
Trametes hirsuta
T. squarrosa
Triscorium mycogon
Xylaria acuta

Salix *Ciboria amantacea*
Helotium aseni

Sambucus racemosa L., cult.

Septoria sambucina

Sambucus sp. frags

Camptosporium Sambuci
Phoma sambucina

Sanicula marilandica L.

Puccinia marylandica
Urophysalis plurimaculata

Saponaria officinalis L., cult.

Cylindrosporum officinale

Saponaria Vaccaria L.

Macrosporium Saponariae

Sarcobatus vermiculatus (Hook.) Torr.

Puccinia Aristidae

Sarracenia purpurea L.

Mycosphaeria Sarracenae

Schizochytrium: see *Andropogon*

Scirpus atrovirens Muhl.

Scirpus cyperinus (L.) Kunth

Scirpus microcarpus Pres.

Puccinia angustata

Scirpus paludosus A. Nels.

Uromyces Scirpi

Scirpus validus Vahl

Hypodermis scirpina
Puccinia elicta
Septoria carviana

Scalochloa festuacea (Willd.) Link

Puccinia cerosata

Scutellaria lateriflora L.

Erysiphe Canoeorum
Septoria Scutellariae

Secale cereale L. cult.

Claviceps purpurea
Erysiphe graminis
Fusarium avenaceum
F. Equiseti
F. oxysporum
Helmotiosporium gemmatum
H. sativum
Lagenaria radialis
Ophiostoma radialis
Puccinia graminis
P. rubigo-vera var. *Secalis*
Pseudomonas translucens var. *Secalis*

Secale cereale L. cult. — Cos.

Pythium arbesomones var. *canadense*
P. volutum
Septoria Secalis
Sphaeria segetum
Uromyces occulta

Senecio columbianus Greene

Puccinia extensa var. *hirsuta*

Setaria glauca (L.) Beauv.

Ustilago neglecta

Setaria italica (L.) Beauv., cult.

Sclerospora graminicola

Setaria viridis (L.) Beauv.

Piricularia grisea
Pythium arbesomones var. *canadense*
Sclerospora graminicola

Shepherdia argentea Nutt.

Puccinia Canoe-Shepherdiae
Sphaerotheca Humuli var. *fuliginea*

Shepherdia canadensis (L.) Nutt.

Puccinia Canoe-Shepherdiae
P. cerosata

Septoria Shepherdiae

Sphaerotheca Humuli var. *fuliginea*

Sibbaldopsis: see *Potentilla*

Silene: see *Caum*

Silene noctiflora L.

Septoria Lychnidis

Sium: see *Potentilla*

Sium: see *Potentilla*

Albugo candida
Pectonopora pumila
Puccinia Aristidae

Sium: see *Potentilla*

Puccinia Aristidae

Sium: see *Potentilla*

Albugo candida

Sium: see *Potentilla*

Brenckia Sium

Sium: see *Potentilla*

Fuscladium myosotis

Septoria Sium

Uromyces Sium

Sium: see *Potentilla*

Uromyces Sium

Uromyces Sium

Uromyces Sium

Uromyces Sium

Uromyces Sium var. *magister*

Uromyces Sium

Sium: see *Potentilla*

Colletotrichum L. acerum

Metasphaeria Dracopis

Phytophthora Dracopis

Puccinia amphigena

Ramularia subulifera

Stagonospora Sium

Sium: see *Potentilla*

- Soja** see *Glycine*
Solanum melongena L., cult.
Alternaria Solani
Solanum triflorum Nutt.
Entyloma australe
Solanum tuberosum L., cult.
Actinomyces scabies
Alternaria Solani
Bacillus phytophtherus
Colletotrichum atramentarium
Corticium Solani
Passerina candelaria
P. oxyspermum form 1
P. sambucinum form 6
P. triboothecoides
Phytophthora infestans
Rhizoctonia Crucerae
R. Solani
Spondylocolium atrovirens
Verticillium a bo-strum
alt. tubere. Anrostolagus cinnabarinus
Styranus Stemonites
Solidago canadensis L.
Cercosporella tenuis
Coleosporium Solidaginis
Solidago gilvocanescens (Rydb.) Smyth
Coleosporium Solidaginis
Ramularia v. nigrescens
Solidago hispida Muhl.
Ramularia Virgatae
Solidago multiradiata Ait.
Coleosporium Solidaginis
Solidago nemoralis Ait.
Puccinia extensicola var. *Solidaginis*
Solidago rigida L.
Puccinia extensicola var. *Solidaginis*
P. Stipae
Septoria solidaginis
Solidago serotina A. t.
Coleosporium Solidaginis
Puccinia extensicola var. *Solidaginis*
Septoria solidaginis
Solidago sp.
Erysiphe Cichoracearum
steve. Ophiobolus fulgidus
Rhizospora Solidaginis
R. ulagrica
Senecio arvensis L.
Marschneria Seneci
Rhizoctonia Senecis
Septoria Seneci arvensis
S. senecifolia
steve. Leptosphaeria doliozum
L. subconica
Phoma cyathodes
Sclerotium, deciduum
Sporocybe tesulata
Sophia see *Sisymbrium*
Sorbus see *Pyrus*
Spartina gracilis Trin.
Claviceps purpurea
Puccinia Distichidis
Uromyces acuminatus var. *magnatus*
U. acuminatus var. *Polemoni*
Spartina pectinata Rose
Puccinia Distichidis
Uromyces acuminatus var. *magnatus*
U. acuminatus var. *Polemoni*
Sphaeralcea see *Malvastrum*
Spharagemon collare (Scud.) (insect)
Romulus Gryll
Sphenopholis obtusata (Michx.) Scribn.
Puccinia Falconae
Spider
Beauveria densa
Spinacia oleracea L., cult.
Peronospora spinaciae
Spiraea salicifolia L.
Cercospora rubigo
Cylindrosporium salicifolium
Spiraea sp. cult.
Nectria cinnabarina
Spirodela polyrrhiza (L.) Schind.
Tricorys Lemnae
Spirogyra sp.
Leguminum sp.
Sporobolus cryptandrus (Torr.) Gray
Puccinia graminis
Stachys palustris L.
Erysiphe Cichoracearum
E. Galeopedis
Septoria Stachydis
Stachys scopulorum Greene
Erysiphe Galeopedis
Stelionema ciliatum (L.) Raf.
Phyllobata decidua
Puccinia Days
P. Distichidis
Hamularia Lychnachae
Septoria consocium
Stellaria longifolia Muhl.
Stellaria longipes Goldw.
Puccinia Anematis
Stellaria media (L.) Oenillo
Septoria Stellariae
Stipa comata Trin. & Rupr.
Puccinia Stipae
Uromyces granulosus
Ustilago hypodytes
Stipa spartea Trin.
Puccinia Stipae

Stipa viridula Trin.

- Claviceps purpurea*
Puccinia scabiei
Ustilago hypodytes

Symphoricarpos albus (L.) Blake

- Microsphaera diffusa*

Symphoricarpos occidentalis Hook

- Cercospora Symphoricarpi*
Microsphaera diffusa
Puccinia Crandallii
Rhizoglyphus Symphoricarpi
Septoria Symphoricarpi

stems: Anthostoma melanotus

- Camarosporium umbonatum*
Cryptospora Kansensis

Cytospora Symphoricarpi

Didymosphaeria decolorans

Dethielium Symphoricarpi

Haplosporella Symphoricarpi

Hymenochaete cinnamomea

Lophidium sp.

Lophostoma praemorsum

L. triseptatum

Metasphaeria sp.

Mollisia caesia

Otilia Symphoricarpi

Penicillaria cinerea

P. suberecta

Peridermium peridermiae form *longiseta*

Rhabdospora sp.

Russellina parvula

Schizoxylon decipiens var. *Symphoricarpi*

Valsa Symphoricarpi

Symphoricarpos sp.

Phyllosticta Symphoricarpi

Syringa vulgaris L., cult.

Microsphaera Auct.

branches: *Sphaeropsis Syringae*

Tamarix sp. cult. old stems

Coniothyrium Tamaricis

Valsa ambigua

Tamnetum vulgare L., cult.

Ramularia Tamneti

Taraxacum dumetorum Greene

Puccinia Hieracii

Taraxacum officinale Weber

Puccinia Hieracii

Ramularia Taraxaci

Rhizoctonia Solani

Sphaerostroma Humuli var. *fuliginea*

old parts: Colletotrichum Dematium**Thalictrum dasycarpum** Fisch. & Lall

Erysiphe Polygona

Phytophthora Thalictri

Puccinia rubigo-vera var. *Agropyri*

P. rubigo-vera var. *agropyrina*

Truncatella Thalictri

stems: *Rhabdospora rugosa*

Thalictrum dioicum L.

Entyloma Thalictri

Myco-sphaerella Thalictri

Phytophthora Thalictri

Puccinia rubigo-vera var. *Agropyri*

Thalictrum venulosum Tiel.

Puccinia rubigo-vera var. *Agropyri*

P. rubigo-vera var. *agropyrina*

Truncatella Thalictri

Thalictrum sp.

Cylindrosporium Thalictri

Septoria Thalictri

Thermopsis rhombifolia (Nutt.) Richards

Cercospora Thermopsidis

stems: *Endodothella* sp.

Phoma thermopsideae

Thlaspi arvense L.

Alternaria Brassicae

Puccinia Arutidae

Thuja occidentalis L.

branches: *Anthostomella pholidigens*

Auct. *Mytilidion Thujae*

Odonia alutacea

wood: *Centophora corticella*

Corticium vagum

Pleurotus applanatus

Tilia americana L.

Phyllosticta Tiliae

branches: *Cyphelia Tiliae*

Dicranosporium Robiniae

Exosporium Tiliae

Fusicladium stenocaulum

Mastomella Curryi

Sphaeropsis olivacea

bark: *Corticium confluent*

Nectria nucleata

Penicillaria nuda

wood: *Corticium septentrionale*

Hypoxylon robiniae

Oreia chrysocoma

Tinaria: see *Polygonum***Toxicodendron**: see *Rhus***Trachyrachis klows** (Thom.) (Insect)

Empusa Grylli

Tragopogon dubius Scop.**Tragopogon porrifolius** L.

Albugo Tragopogonis

Trientalis americana (Pursh.) Pursh

Ramaria Magnusana

Septoria trientalis

Trifolium hybridum L., cult. and escaped

Cercospora trifolii

Polythrincium Trifolii

Pseudopeziza Trifolii

Stagonospora Medici

Uromyces nervifolius

U. Trifolii var. *hybridi*

- Trifolium medium** L., cult.
Uromyces Trifolii var. *fallens*
- Trifolium pratense** L., cult. and escaped
Erysiphe Polygoni
Gloeosporium spadiceum
Polythriconium Trifolii
Pseudopeziza Trifolii
Sclerotinia sclerotiorum
Uromyces Trifolii var. *fausta*
- Trifolium repens** L., cult. and escaped
Uromyces nervophilus
U. Trifolii var. *Trifolii-repentis*
- Triglochin maritima** L.
Puccinia Aristidis
- Trisetum spicatum** (L.) Richter
Puccinia monota
- Triticum aestivum** L., cult.
Claviceps purpurea
Erysiphe graminis
Fusarium avenaceum
F. avenaceum var. *velutum*
F. bulbigenum
F. bulbigenum var. *Lycopersici*
F. culmorum
F. culmorum var. *canele*
F. Equiseti
F. Equiseti var. *bullatum*
F. moniliforme
F. orthoceras
F. orthoceras var. *longius*
F. oxysporum
F. oxysporum var. *aurantiacum*
F. Pose
F. reticulatum
F. Scirpi var. *stemonatum*
F. Scirpi var. *gliferum*
F. Solani
F. Solani var. *Martii*
F. sporotrichioides
Helminthosporium geniculatum
H. sativum
H. tetrasera
H. Tritici-repentis
Lagena radicola
Ophiostoma radialis
Ophiostoma graminis
Pseudomonas atrofaciens
P. translucens var. *undulosa*
Puccinia pumilus
P. graminis
P. rubigo-vera var. *Tritici*
Pythium arthrochaeta var. *canadensis*
P. volutum
Sclerotia nodorum
S. Tritici
Thielavia tenuicola
- Triticum aestivum** L., cult.—*Con.*
Tilletia caries
T. laevis
Trichothecium roseum
Ustilago Tritici
Wojnowicia graminis
old parts of plants, and roots, some fungi possibly parasitic
Acrostagnum cinnabarinum
Aspergillus flavipes
A. Okazaki
Bullera alba
Chaetomium olatum
C. globosum
Gloeosporium graminum
Coprinus phaeosporus
Cunninghamella elegans
Episaccus purpureus
Fusarium coeruleum
Geomyces vagans
Gloecladium roseum
Metarrhizium sp.
Metaphaeria hyalosporea
Mor. is implicata
Penicillium olacinum
P. resinatum
P. Thomii
Pestalotia sp.
Pyrenophora trichostema
P. Tritici-repentis
Spira toruloides
- Triticum compactum** Host, cult.
- Triticum dicoccoides** Korn., cult.
- Triticum dicoccum** Schrank, cult.
Puccinia graminis
- Triticum durum** Desf., cult.
Claviceps purpurea
Fusarium avenaceum
F. bulbigenum
F. oxysporum
F. Scirpi
Gelasinospora cerealis
Helminthosporium geniculatum
H. sativum
H. tetrasera
Lagena radicola
Puccinia graminis
P. rubigo-vera var. *Tritici*
Pseudomonas atrofaciens
Tilletia caries
T. laevis
Ustilago Tritici
- Triticum Spelta** L., cult.
Puccinia rubigo-vera var. *Tritici*
- Tropaeolum majus** L., cult.
Albugo candida

Tulipa Gamberiana L., cult.

Botrytis Tulipes

Typha latifolia L., old parts

Heterosporium maculatum

Peniophora Sambuci

Ulmus americana L., native and cult

Geomys ulmi

branch: Camarosporium cruciatum

Dinemasporeum Robiniae

Dipodia metacera

Nummularia repanda

Ostrea cinerea

Peniophora cinerea

Sphaeropsis ulmicola

Thyridium ambicolum

Valsa ambigua

leaf: Diatrype hochstegiae

Guerdinia helvetica

Hysteropatella Proct.

Mucronium androsaceum

Peniophora longipora

Pestalotia canadensis

Tetraspora obtusum

wood: Aleurospora carpaeus

Cephus domesticus

Corticium fenestratum

C. pelliculare

C. roseum

Mollisia cinerea

Phaeospora ulmariae

Polyporus conchileus

P. fulvus

P. lentulus

P. tulpifera

old leaves: Helotium album

H. rosaceum

Typhula gyrana

Ulmus parviflora Jacq., cult

Noctia cinnabarina

Uredinales

Darlus flum

Tuberculina persicina

•Unifolium see *Malanthemum***Urtica gracilis** Ait

Puccinia Caricis var. urticae

Ramularia Urticae

Sclerotinia sclerotiorum

Septoria Urticae

stem: Leptospira deliolum

Pistillaria musca

Urtica Lyallii Watson

Puccinia Caricis var. urticae

Urticastrum see *Laportea***Vaccinium canadense** Kalm

Venturia compota

Vaccinium Vitis-idaea L.

Pucciniastrum Gonopertusum

Vaccinium sp.

Exobasidium Vaccini

Vagniera see *Semilacina***Valer** sp., old

Noctia epiphytica

Verbena hastata L.

Phyllosticta verbenicola

Veronica longifolia L. cult

Septoria Veronicae

Sphaerotheca Humuli var. fuliginea

Veronica peregrina L.

Pestalotia grisea

Viburnum Lentago L.

Cercospora Viburni

Microsphaera Alb.

branch: (1) Diatrype Lentaginis

Diaportha Viburni

D. hymenopora epidermidis

Diatrypa to liana

Fomes conchatus

Hysterographium flexuosum

H. Fraxin.

Pogonopus tubulosus

Stictis fusca

S. radiata

Viburnum Opulus L.

Cercospora Opul.

Plasmopara Viburni

Ramularia V. rum.

branch: Diaportha Viburni

Diatrypa discoides

Didymella marituberosa

Didymosphaeria epidermidis

Heteropatella Viburni

Hypoxylon fuscum

Hysterographium Fraxin.

Leptosphaeria borealis

Massaria plumigera var. tetraspora

Pestalotia a bicolor

Rhizospora Viburni, Opul.

Stictis fusca

S. mollis

Valsa ambigua

Viburnum pauciflorum Raf

Cercospora Opul.

C. variis

Puccinia Luku

Viburnum pubescens (Ait.) Pursh

Cercospora varia

Phyllosticta Lentaginis

stem: Metasphaeria anemometra

- Viburnum** sp., branches
Corticium cantharidum
C. erubescens
Dactylopusia asterospora
Didymium melanosperrum
Nectria nucicola
Phoma vulgaris
- Vicia americana** Muhl.
Peronospora narbonneana
Uromyces coarctatus var. *campestris*
U. Fabae
- Vicia americana** var. *angustifolia* Nees
Microspora Alae
Peronospora Viciae-sativae
Uromyces coarctatus var. *campestris*
- Vicia Cracca** L.
Uromyces oleradensis var. *campestris*
- Vicia oregana** Nutt.
Uromyces Fabae
- Vicia villosa** Roth, cult.
Ascochyta Viciae
- Viola adunca** Smith
Puccinia Violae
- Viola canadensis** L.
Phyllosticta Viciae
Puccinia Violae
Ramularia isopletha
Sphaerotheca Humuli
S. Humuli var. *fuliginea*
- Viola nephrophylla** Greene
Puccinia Nissana
P. Violae
- Viola odorata** L.
- Viola pedatifida** G. Don
- Viola pubescens** Ait.
- Viola renifolia** Gray
Puccinia Violae
- Viola tricolor** L., cult.
Cercospora Viola-tricoloris
Puccinia Violae
Sphaerotheca Humuli var. *fuliginea*
- Viola** sp.
Septoria Violae
- Vitis vulpina** L.
Phyllosticta spermoides
Ascos. Ascosporium griseocanum
Coscinotrypa olivaceum
Corticium Elicium
Didymella lophospora
Didymosphaeria diplospora
Lophospora triseptatum
Melanospora subdiacutata
Phoma acutula
Sphaeropsis vitigena
- Vitis** sp., cult.
Pseudopeziza viticola
- Xanthium commune** Britt.
Puccinia Xanthi
Septoria Xanthi
- Zea Mays** L., cult.
Bacillus Sorghi
Fusarium avenaceum form 1
Lagenia radicola
Nugospora aphroeca
Puccinia Sorghi
Pythium arthrochaetes var. *canadensis*
P. volutum
Ustilago Zeae
old form Duplodina Zeae
Fusarium Sorghi var. *acuminatum*
Gibberia a. Soudanensis
Monascus purpureus
- Zinnia elegans** Jacq., cult.
Cryptophyllum Cichoracearum
- Zizia aurea** (L.) Koch
Ascochyta Thapsi
Puccinia Anagallis
- Zizia cordata** (Walt.) DC.
Cercospora Ziziae
Puccinia Ziziae
Ascos. Colletotrichum Dematium
- Zygadenus elegans** Pursh
Puccinia atropurpurea
- Zygadenus gramineus** Rydb.
Uromyces Zygadeni

XVIII BIBLIOGRAPHY

Various standard mycological works were used in determining the fungi. Several of these have been mentioned. Part I includes other publications which were consulted in one or more specific cases, and referred to by number in the pages preceding.

Part II is the Bibliography of papers published by mycologists and plant pathologists in Saskatchewan. It was prepared by Dr R. C. Russell and Prof. W. P. Fraser.

Part III includes the publications by Manitoban mycologists, except those at the Rust Research Laboratory.

Part IV is the Bibliography of all papers published from the Dominion Rust Research Laboratory at Winnipeg.

The references in Parts II, III and IV are believed to be complete to November, 1934, but in parts II and III most of the papers not mycological, or not pertaining to western Canada, have been omitted.

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XIX. INDEX TO GENERA AND ORDERS OF FUNGI

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